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PRACTICE URBAN FORESTRY

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Better Foliage Through Zoning

By James Schwab, AICP, and Carrie Fesperman

Trees are an overwhelmingly popular amenity in urban areas these days, yet they don't always get the respect they deserve in local development regulations.

Citizens enjoy trees, but there is room for more education of both the public and decision makers about the conditions that allow successful urban forestry programs to happen. Planners, foresters, and arborists are learning how to convert good intentions into actual long-term improvements in greening our cities.

The need for effective planning and implementation of urban forestry is becoming more apparent in a nation that is increasingly focusing its attention on serious environmental challenges like climate change. Fortunately, a growing body of research and experience has given urban policy makers much to consider. In recent years, urban forestry research has documented and quantified a variety of benefits from trees. These include:

- stormwater runoff filtering;
- soil stabilization;
- filtering of some kinds of air pollution;
- urban heat island mitigation;
- reduced building energy consumption (through tree shading and wind breaks); and
- improved mental health and social interaction for residents, particularly in densely developed areas.

Trees are, quite simply, central to a healthy ecosystem. This list is only the beginning of a substantial web of interrelated benefits that ultimately encompass increased biodiversity, water quality, aesthetics, and quality of life—a panoply of positive impacts that in turn foster a wide variety of civic motives for protecting the urban forest.

Because this issue is so vital to the health of American cities, the American Planning Association joined forces more than two years ago with the U.S. Forest Service, American Forests, and the International Society of Arboriculture to prepare a Planning Advisory Service (PAS) Report examining best

practices in planning for urban forestry. The emphasis of the project has been on ways to integrate urban forestry concerns into the planning process. This issue of *Zoning Practice* distills a few of the most important points from the forthcoming PAS Report, *Planning the Urban Forest: Ecology, Economy, and Community Development*, as they relate to zoning and other development codes.

URBAN FORESTRY IN PLANS AND CODES

Considering the combination of benefits associated with the urban forest, two questions arise in drafting local regulations to protect and encourage trees: What goals has the community established, and how does it hope to achieve them? The PAS Report, which includes 13 case studies of communities across the U.S., identifies both holistic and single-purpose approaches among local governments, as well as two regional efforts. Within those broad categories, community needs often vary widely. For instance, among the more focused approaches, Flagstaff, Arizona, must address concerns about fires in the wildland-urban interface. None of the other communities studied treat that as a major challenge. In communities with more holistic approaches, there are varying mixtures of both external stimuli for program development and internal civic motivations ranging from beautification to economic revival and environmental protection. It is worth looking at each of these factors separately before discussing regulatory techniques. Planners who understand the relative importance of these factors in their communities are in a better position to advance the underlying goals sensibly and efficiently.

External Drivers

These are mandates, grant programs, and incentives from higher levels of government,

usually state or federal, but sometimes regional. Environmental protection laws, such as stormwater regulations or air quality mandates, as well as state planning laws, are among the external drivers that may induce action at the local level to solve a problem or comply with regulatory standards. Studies showing that trees can help reduce nonpoint-source pollution, for example, at lower cost than highly engineered alternatives, help make the case for incorporating them as a means of reaching the desired goal. These drivers often provide a politically and economically viable rationale for adopting tree preservation requirements that might otherwise face more intense opposition.

Reaction to the Impact of New Development

Sometimes, however, citizens want better tree protection because they feel the community has lost something valuable when trees are cut down to make way for new development, or when trees die because of the adverse impacts of such development. Columbus, Georgia, for instance, adopted a strict tree protection ordinance as the result of intense citizen lobbying in the face of developer resistance. Many cities, like Savannah, Georgia, have local tree trusts and other organizations that advocate for better tree protections and often provide potent political support for local officials who enact such measures.

Green Community Pride

At some point in many communities, civic pride in the community's green image manages to transform the civic agenda. These communities then begin to craft a more holistic approach to creating and supporting green infrastructure, defined by authors Mark A.

ASK THE AUTHOR JOIN US ONLINE!

Go online from June 30 to July 11 to participate in our “Ask the Author” forum, an interactive feature of *Zoning Practice*. Jim Schwab, AICP, will be available to answer questions about this article. Go to the APA website at www.planning.org and follow the links to the Ask the Author section. From there, submit your questions about the article using the e-mail link. The author will reply, and *Zoning Practice* will post the answers cumulatively on the website for the benefit of all subscribers. This feature will be available for selected issues of *Zoning Practice* at announced times. After each online discussion is closed, the answers will be saved in an online archive available through the *Zoning Practice* web pages.

About the Authors

James C. Schwab, AICP, is a senior research associate for APA, as well as coeditor of *Zoning Practice* and manager of APA’s Hazards Planning Research Center. He was the project manager for APA’s Planning for Urban and Community Forestry project and principal investigator for the forthcoming PAS Report, *Planning the Urban Forest*. Carrie Fesperman is an APA program development associate, the manager of APA’s Planning and Community Health Research Center in Washington, D.C., and a member of the project team that prepared the Chapel Hill case study.

Benedict and Ed McMahon (*Green Infrastructure*) as “an interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife.” The result is usually a growing but synergistic array of incentives, programs, regulations, and outreach efforts to achieve a variety of environmental goals through urban forestry.

One overarching goal taking hold in some of these communities involves establishing a target percentage in some future year for tree canopy coverage, which is the percentage of the city’s ground cover that lies beneath the canopy of the urban forest. A Maryland Department of Natural Resources study commissioned by the city of Baltimore, for instance, recommended a goal of 46.3 percent canopy coverage by 2030–2036, up from a level of 20 percent in 2006. Such communities typically seek to implement their goals through a series of code requirements and incentives for landowners, in addition to planting and maintaining trees on public property and rights-of-way. As Gary Letteron, a planner for the city’s environmental department, noted at the time to the *Baltimore Sun*: “We cannot add 20 percent tree coverage without some of it going on private property.”

BEST PRACTICES EXAMPLES

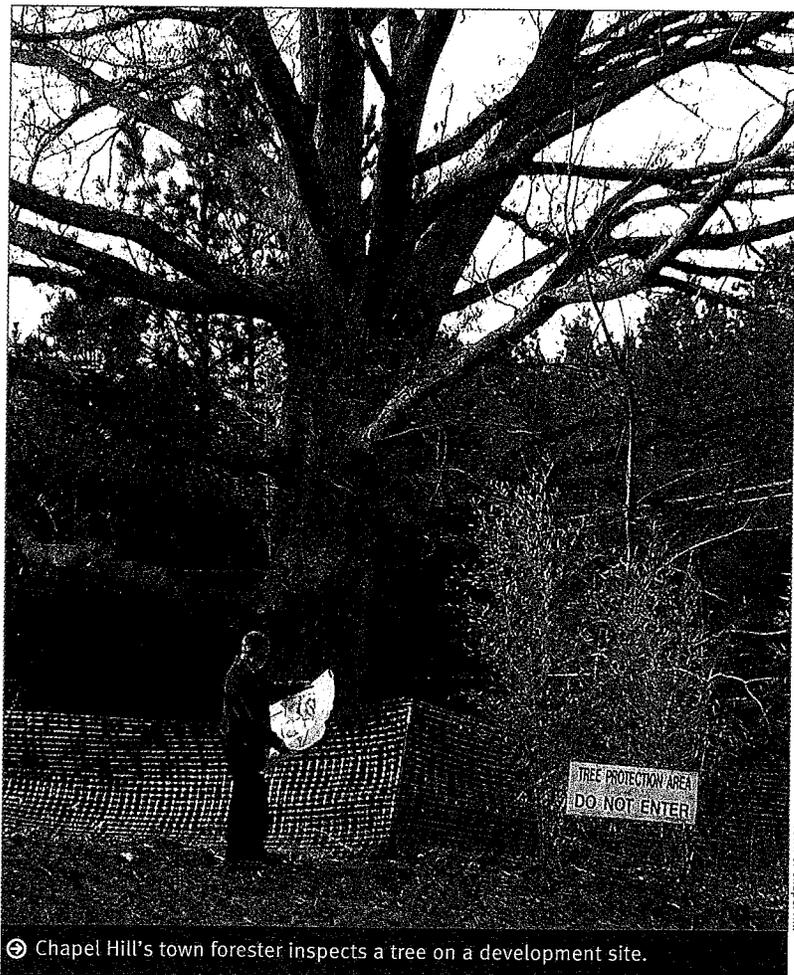
The remainder of this article will explore specific regulatory approaches used by communities that served as case studies in the PAS Report. As noted, these are often used in concert with other programs and initiatives to achieve urban forestry goals. The report also notes the importance of adequate funding for urban forestry, including both capital improve-

ments and budgeting for enough enforcement personnel to ensure compliance with tree protection and planting requirements and long-term maintenance for new developments, parking lots, and subdivisions. It is never enough simply to place such requirements in the code because maintaining a healthy urban forest is an ongoing proposition that must be

sustained long after new developments are completed. Good forest planning calls for adequate resources for enforcement.

CHAPEL HILL, NORTH CAROLINA

This college town’s urban forestry program started in 1989 when the Town of Chapel Hill amended its charter to authorize tree protec-



☉ Chapel Hill’s town forester inspects a tree on a development site.

Town of Chapel Hill

The Chapel Hill Tree Protection Ordinance requires the identification and protection of trees and other vegetation from incompatible development.

tion regulations based on the recommendation of the Tree Protection Task Force. The task force was created, in part, to respond to developers' unsuccessful efforts to design around trees and protect them during construction. The developers were protecting tree trunks without taking appropriate measures to also protect the root zones from compaction during construction. Consequently, trees "saved" during construction were dying within a few years after building occupancy.

The resulting Tree Protection Ordinance required the identification of rare and specimen trees as well as the preparation of a landscape protection plan that distinguished tree protection zones for most development projects. An urban forester position was created in the early 1990s to help implement the ordinance. In 2003, the city enacted its Land Use Management Ordinance, which included the Tree Protection Ordinance. At that time, tree protection requirements were expanded to regulate certain single- or two-family dwelling projects.

The purpose of the ordinance is five-fold:

- to regulate the protection, installation, removal, and long-term management of trees, shrubs, and soils;
- to encourage the proper protection and maintenance of existing trees, shrubs, and soils on all public and some private lands;
- to charge the town manager to prescribe procedures for the proper protection, installation, and long-term management of landscape elements on all developing, all public, and some private lands;
- to establish a system of permits to assure the correct planting, maintenance, protection, and removal of trees and soil on public and private property; and
- to establish penalties for violation of its provisions.

The Tree Protection Ordinance requires the identification and protection of trees and other vegetation from incompatible development, describes which trees require protection (e.g., all trees at least 18 inches

in diameter or uncommon species such as the longleaf pine or live oak) and how the critical root zones and other features should be protected, including lot layout, building or paved surface placement, or location of utilities. Fencing is used to protect vegetation during all construction activities, as well as right-of-way clearing during the subdivision process. The ordinance also outlines plans for tree plantings and maintenance to be performed by the town.

In order to accomplish these goals, the ordinance requires an approved landscape protection plan and a preconstruction conference with the town staff prior to any site development. Permit applicants must prepare a landscape protection plan and get it approved before a zoning compliance permit will be issued. A certified landscape protection supervisor is designated to be responsible for supervising all construction activities on nonresidential and multifamily residential sites.

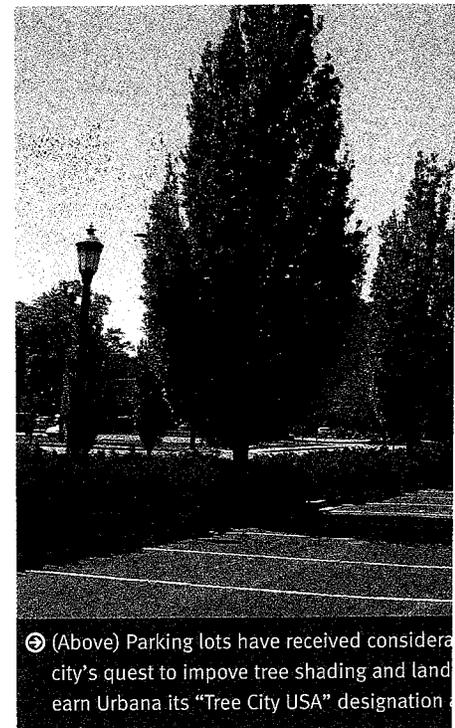
Once the zoning and building permits are issued and the tree protection fence installed, the landscape protection supervisor, usually a landscape architect or urban forester, has to inspect and approve the fence before any work or site disturbance can start. Throughout the construction process, the supervisor regularly inspects the site to ensure that fences remain in place and vertical and that the tree protection area is not violated. If there are viola-

RESOURCES ONLINE

APA maintains a project website at www.planning.org/forestry/index.htm, where you can find resources related to the project described in this article. Included within the site is a page of case study resources, with active links to local ordinances, plans and plan elements, program descriptions, and guidelines for best practices from all of the communities examined.

tions, the town may issue a stop-work order or levy fines.

Landscape protection plans are also required for new construction or for the expansion of single- or two-family dwellings when renovations require a building permit and cause a land disturbance of 5,000 square feet or more. In addition, development activities on or adjacent to public land, including construction, tunnel excavation, or utility or pavement repair require the approval of the town manager and a landscape protection plan.



➤ (Above) Parking lots have received considerable attention as part of the city's quest to improve tree shading and landscape quality to earn Urbana its "Tree City USA" designation.

Because the number of buildable lots within town limits is shrinking, the focus in Chapel Hill is now on infill development and redevelopment. As a result, the town council is considering additional ways to protect trees on existing single-family lots. The council endorsed in 2006 the idea of expanding current tree protection regulations and is considering adopting a vision statement calling for no net loss of canopy cover and an increase in trees proportional to population growth.

URBANA, ILLINOIS

The Arbor Day Foundation, in cooperation with the USDA Forest Service and the

National Association of State Foresters, first designated Urbana a “Tree City” in 1975. It has come a long way since then, in large part by diversifying its tree population to reduce vulnerability to insect pests and diseases and by adopting a long-term rotation for pruning, a program managed by the city arborist, Mike Brunk.

However, the city arborist’s responsibilities do not stop there. A section of the city code dealing with vegetation offers specific details for planting trees, plants, and shrubs. The city’s Arbor Specifications Manual serves

One interesting feature of the Urbana program is what Brunk calls its “safety valve.” Citizens and landowners who wish to appeal his decisions can turn to a seven-member tree commission, which advises the city arborist on matters concerning the selection, maintenance, and removal of trees and shrubs, as well as arbitrating any disputes. Of the seven members, four must come from related professions, and three are at-large citizens.

The city is currently working on a revision and update of the city’s subdivision

code, in which it plans to include a reduction of right-of-way from 31 to 27 feet, which some argued would squeeze the space available for accommodating both trees and utility lines. The draft ordinance is expected to go before the plan commission and city council for approval later this year.

OLYMPIA, WASHINGTON

Quite possibly the greenest community studied in the APA project was Olympia. The city has an impressive array of well-integrated programs and included a chapter on urban forestry in its 1994 comprehensive plan. The ambitious program has a shorter history than the one in Urbana. It began in 1989 with a grant from the Washington State Department of Natural Resources to conduct an urban forest inventory through the city’s long-range planning division with help from volunteers. The comprehensive plan element states that Olympia wishes to become “a city of trees.” It is worth noting, however, that the city was motivated by the loss of approximately 430 acres of trees to development in the 1980s. What is significant is how quickly that initial concern over tree loss was converted into a holistic approach to making Olympia a well-forested community.

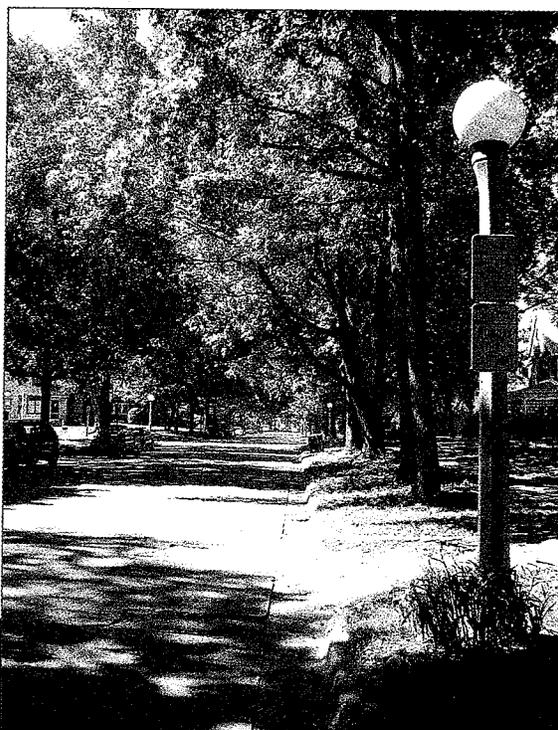
The program now has five elements, which include:

- the “Neighborhoods” program to provide free trees to residents to plant near city streets;
- a hazard tree abatement program to remove dangerous trees;
- the Streetscapes program for designing, planning, and managing major street tree planting projects; and
- educational and outreach programs that partner with educational institutions and non-profit agencies.

The fifth element is the city’s Tree Protection and Replacement Ordinance. Its purpose is to ensure that trees are protected and planted when property is developed. One full-time urban forestry employee is dedicated to administration and enforcement of the ordinance. Any permit for tree removal requires the preparation of a tree plan, which is also required for any land development on property with a tree density below a required minimum of 30 tree units per acre on the buildable area of a site. Tree replacement requirements are spelled out in a table (see sidebar on page 6).



on in Urbana’s development code in the (Right) Tree-lined neighborhoods helped 1975.



Photos by Jim Schwab

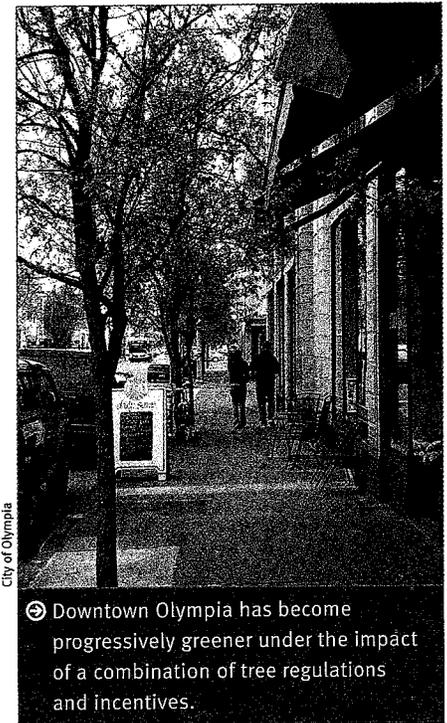
as a guide for tree maintenance. The code also incorporates requirements for tree planting for screening and in parking lots, and those designs must be approved by the city arborist. Contractors who want to remove trees in the right-of-way for commercial development must get city approval (through the city arborist), remove them at their own expense, and replace the tree’s value according to standards developed by the Council of Tree and Landscape Appraisers and published by the International Society of Arboriculture. The arborist routinely reviews for the planning department questions relating to street trees in proposed new developments, a role first formalized in the 1970s.

A section of the Urbana city code dealing with vegetation offers specific details for planting trees, plants, and shrubs.

**OLYMPIA, WASHINGTON'S REQUIRED MINIMUM TREE DENSITY
AND REPLACEMENT TREE REQUIREMENTS PER ACTIVITY**

TABLE 16.60.080A

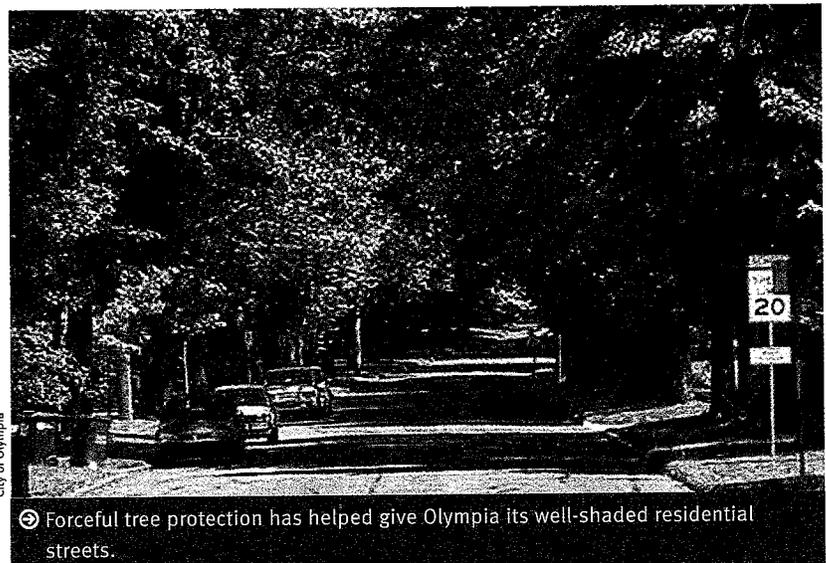
Proposed Activity	Tree Replacement Requirements	Required Minimum Tree Density for the Parcel
New Development	30 tree units per acre	30 tree units per acre
Developing Single-family (multifamily up to 4 units)	30 tree units per acre	30 tree units per acre
Developed Properties	30 tree units per acre	30 tree units per acre
Developed Commercial/Industrial/Multifamily (more than 4 units) proposing an addition or other site disturbance	1 tree unit for every 500 sq. ft. disturbed and 3 tree units for every one tree unit proposed for removal	30 tree units per acre
Developed Commercial/Industrial/Multifamily (more than 4 units) proposing tree removal	3 tree unit for every 1 tree unit proposed for removal	30 tree units per acre
Option Harvest	Site must remain at a minimum tree density of 200 tree units per acre.	200 tree units per acre



City of Olympia

Ⓢ Downtown Olympia has become progressively greener under the impact of a combination of tree regulations and incentives.

Olympia's Landmark Tree Protection Ordinance defines trees deemed irreplaceable because of their historic nature, rare species, or unique aesthetic value.



City of Olympia

Ⓢ Forceful tree protection has helped give Olympia its well-shaded residential streets.

The city's *Urban Forestry Manual* spells out ordinance requirements in more detail and provides detailed guidance on plan standards, tree protection standards, tree planting and maintenance standards, tree density calculations, and specimen tree evaluation. In addition, the city has two handouts to assist in compliance, the

"Builder's Guide to the Ordinance" and the "Homeowner's Guide to the Ordinance," both available online at the city's website. Both particularly help small landowners with minor queries.

Finally, Olympia has several other ordinances geared to specific needs. Its Landmark Tree Protection Ordinance defines trees deemed

irreplaceable because of their historic nature, rare species, or unique aesthetic value. The Public Trees Ordinance focuses on responsible tree management on property owned by the city. The Landscaping and Screening Ordinance, which refers to the Tree Protection and Replacement Ordinance, deals with landscaping and screening planting plans and contains a

specific requirement for minimum 12-foot-wide islands for trees in parking lots. The Critical Areas Ordinance addresses trees in relation to protection of wellhead protection zones, habitats for important species, streams and riparian areas, wetlands, small lakes, and landslide hazard areas.

CONCLUSION

The public demand for greener communities is unquestionably growing, albeit faster in some places and parts of the country than in others. The APA study found noteworthy efforts in all regions of the country. While every case study has lessons to offer, it is also incumbent upon every community to identify its own specific needs and craft its own way forward to meet those needs. No one size fits all; the geographic, climatic, and political factors involved in success vary widely. Examining what works under what conditions is critical, as is a commitment to provide the resources necessary for effective code enforcement and program implementation.



NEWS BRIEFS OHIO HIGH COURT LETS TAKINGS RULING STAND

By Lora Lucero, AICP

In April 2008, the Ohio Supreme Court decided not to accept review of a decision from the intermediate court that found a zoning classification of "P" for parks and open space was an unconstitutional taking. The decision has important lessons for planners and communities interested in preserving open space and recreational land uses.

A municipality cannot impose on a private owner the duty of a public function.

Since 1966, the Amberley Village zoning ordinance had classified the privately owned golf course property as "Park," which limited the uses to golf courses, parks, and public playgrounds. There were only two properties in the village classified as "Park"—a golf course and a public park. When the owner of the golf course began to

lose money in the 1990s, he decided to sell to a residential developer, but the developer was unsuccessful in getting the property rezoned. The owner filed a declaratory judgment action and argued the "Park" designation was unconstitutional because it destroyed the market value of the property and effected a taking.

Following an 11-day trial and more than 2,500 pages of transcript, the trial court concluded the "Park" designation was arbitrary and unreasonable and denied "the economically viable or reasonable use" of the property. The court of appeals affirmed. The central inquiry, the court said, is whether the zoning classification denied the owner all economically viable use of his land.

The village asserted several governmental interests for maintaining the "Park" classification on the property, including (1) the preservation of open space, (2) the maintenance of the village's "rural character and ambiance," (3) the provision of recreational opportunities, (4) the reduction of demand on the village's resources, (5) the preservation of wildlife habitat, (6) the control of the village's population, and (7) preservation of the village's orderly plan for development.

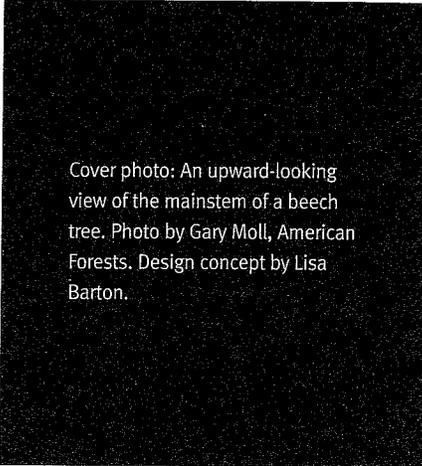
But the trial court stated that "a municipality cannot impose on a private owner the duty of a public function" and if the village wanted to use this private property for a park or a golf course . . . it should have taken it by eminent domain and paid for it."

The big lesson here, as well as in an earlier golf course case from Minnesota (*Wensmann Realty, Inc. v. City of Eagan*), is that planners and local officials must con-

sider and balance the public benefits obtained from land-use regulations against the disadvantages those regulations might have on the private property owner. A private property owner cannot bear the burden alone for preserving open space and meeting public goals. While the goals may be legitimate, the way communities achieve

those goals must be fair (*State ex rel. Ridge Club v. Amberley Village*, Court of Appeals of Ohio (Intermediate Court), Decided November 16, 2007, 2007 WL 3406918).

Lora Lucero, AICP, is editor of Planning & Environmental Law and staff liaison to APA's amicus curiae committee.



Cover photo: An upward-looking view of the mainstem of a beech tree. Photo by Gary Moll, American Forests. Design concept by Lisa Barton.

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**DOES YOUR ZONING
PROTECT TREES?**

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