

LANDLINES

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The Economic Value of Open Space

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AND ROBERT J. LILIEHOLM

Governments have long recognized the need to preserve certain open space lands because of their importance in producing public goods and services such as food, fiber, recreation and natural hazard mitigation, or because they possess important geological or biological features.

New impetus for open space preservation results from the desire to counteract the effects of declining urban cores, suburban sprawl, and the socioeconomic and land use changes now encroaching on high-amenity rural areas. The growing use of habitat conservation plans for reconciling environmental and economic objectives also draws attention to the values of open space, especially in comparison to alternative land uses.

It is likely that most decisions about open space preservation will be made at the local level, due in part to the general trend of devolution of governmental responsibility (with accompanying fiscal responsibility), as well as an increase in the institutional capacity and activism of local land conservation trusts. Since local governments are heavily dependent on the property tax for operating revenue, the fiscal and economic implications of open space preservation decisions are paramount. Conservationists are frequently

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Communications Technology and Settlement Patterns

BENJAMIN CHINITZ
AND THOMAS HORAN

In four years, there will be a fresh count of Americans. The 2000 Census will reveal how many of us there are, who we are in terms of race, nativity, income, family size and occupation, what kind of housing we occupy, where we live and where we work.

All these numbers, but especially the latter two, will reflect what is happening to what planners and social scientists call settlement patterns. The Census will show how people and jobs are distributed regionally between North and South and East and West; within regions between metropolitan and non-metropolitan areas; and within metropolitan areas between cities and suburbs.

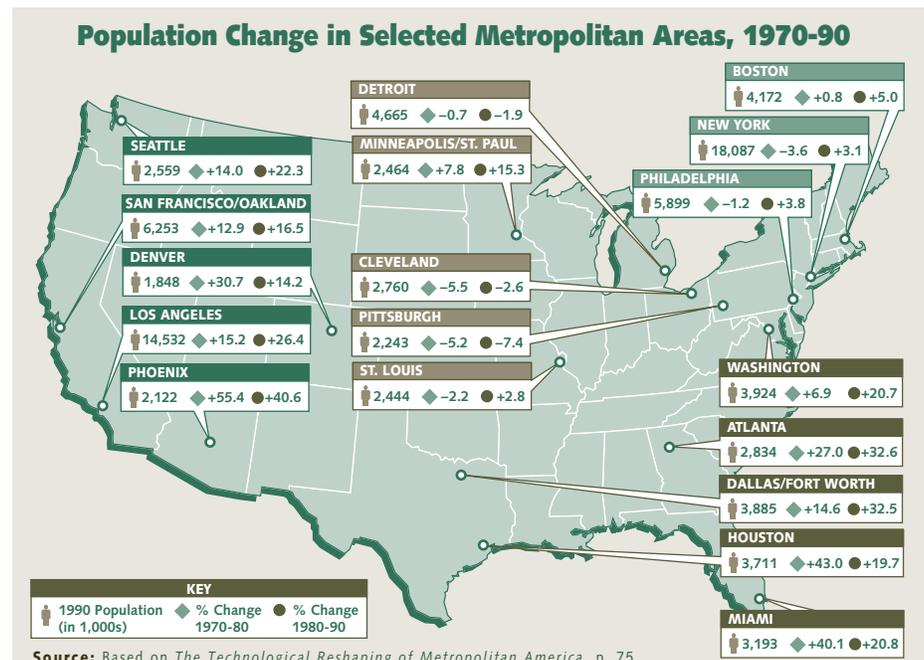
Settlement patterns have been transformed radically in the twentieth century. On a regional basis, the trend has been from East to West and North to South. In the decade between 1980 and 1990,

for example, three states in the West and South accounted for 50 percent of the nation's population growth: California, Florida and Texas.

Within all regions, the trend has been toward ever larger metropolitan agglomerations. By 1990, metropolitan areas of 1,000,000 or more accounted for 50 percent of the nation's population. Within metropolitan areas, cities grew faster than suburbs at the beginning of the century, but by the 1950s the trend was sharply in favor of the suburbs, which now account for more than half of the nation's population.

Will the 2000 Census confirm the continuation of these trends? What stakes do we have in the outcome? Quite a few. We worry about trends that erode the economic base of cities because we are concerned about job opportunities for the poor who are committed, by choice or

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called upon to demonstrate to local communities the economic value of preserving open space.

While much has been written about the economic value of the environment in general and of open space in particular, the literature is segregated by discipline or methodology. It is therefore difficult to assess the economic value of open space comprehensively. It is even more difficult to apply what is known in a public policy context, where open space holds significant non-monetary value.

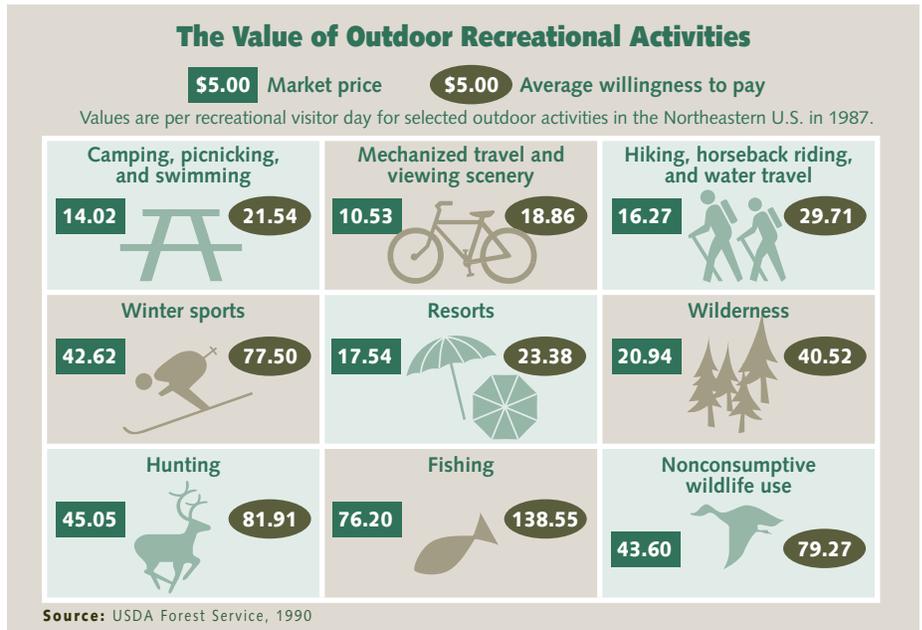
Concepts of Value and Public Goods

Like all natural ecosystems, open space provides a variety of functions that satisfy human needs. However, attempting to assign monetary values to these functions presents several challenges. First, open space typically provides several functions simultaneously. Second, different types of value are measured by different methodologies and expressed in different units. Converting to a standard unit (such as dollars) involves subjective judgments and is not always feasible. Third, values are often not additive, and “double counting” is an ever-present problem. Finally, some would argue that it is morally wrong to try to value something that is by definition invaluable. At a minimum, they say, open space will always possess intangible values that are above and beyond any calculation of monetary values.

EDITOR'S NOTES

Correction: A sentence in the article on “Local Property Tax Reform: Prospects and Politics” in the July 1996 issue of *Land Lines* was printed incorrectly. It should have read: Robert Schwab of the University of Maryland discussed his own study of Pittsburgh’s two-rate tax, with land taxed five times as heavily as buildings.

The Lincoln Institute upgraded its telephone service with the introduction of voice mail during the early summer. We suspect that some messages may have been lost or that callers may have experienced other delays or problems. We regret any inconvenience, and hope you will contact us again at our main number (617/661-3016) or our toll-free number for publications orders or course registrations (800/LAND-USE, 800/526-3873).



Open space often plays an important role in the provision of “public goods.” Public goods are nonexcludable: once they are produced it is impossible or very costly to exclude anyone from using them. They are also nonconsumptive: one person’s enjoyment of the good does not diminish its availability for others. The limited ability of producers to exclude potential users typically precludes the development of market allocation systems for public goods. As a result, easily observed measures of value, like those expressed through market prices, do not exist. Yet land use and resource management decisions imply tradeoffs between marketed and non-marketed goods and services, making it difficult to compare relative values and, through tradeoffs, arrive at socially optimal decisions.

Use and Nonuse Values

Much of the economic value associated with open space activities like recreation can be examined as use value and nonuse value. Use value results from current use of the resource, including consumptive uses (i.e., hunting and fishing), nonconsumptive uses (i.e., hiking, camping, boating and nature photography) and indirect uses (i.e., reading books or watching televised programs about wildlife).

Activities directly or indirectly associated with open space may provide an important source of revenue for businesses and state and local governments. For example, hunting and fishing license fees are a major source of funding for state

wildlife agencies. Less direct but perhaps more important from an overall economic perspective are expenditures related to nonconsumptive open space activities that also have income and job multiplier effects and often occur in rural areas with limited commercial potential.

The economic implications of use and nonuse values across society can be very large, and many economists agree that these values should be considered in open space decisionmaking. Measuring use and nonuse values is difficult, however, due to the lack of markets and market prices and the existence of administratively set, quasi-market prices such as hunting and fishing license fees. To arrive at socially meaningful estimates of value for many nonmarket resources, economists use the concept of consumer surplus, or the amount above actual market price that a buyer would theoretically be willing to pay to enjoy a good or service.

Two methods are used to first estimate the demand curve for the resource: contingent valuation or travel cost methods. In the first, a hypothetical market is created in a survey and respondents are asked what they would be willing to pay for some defined activity or resource. In the second, the cost of travel to a site is viewed as an entry or admission price, and a demand curve is derived from observing visitation from various origins with different travel costs. While still controversial, these methods have been used in numerous studies to estimate the willingness to pay in addition to actual expenses for various

recreational activities (see chart at left), as well as for nonuse values such as maintaining populations of certain endangered species or preserving unique bird habitats.

Several types of nonuse values consider the possibility for future use. Option value represents an individual's willingness to pay to maintain the option of utilizing a resource in the future. Existence value represents an individual's willingness to pay to ensure that some resource exists, which may be motivated by the desire to bequest the resource to future generations.

Measuring the Economic Value of Open Space

As a result of decreased intergovernmental transfers of financial aid and increasing citizen resistance to taxes, local officials now scrutinize the fiscal consequences of land use decisions more than ever before. The primary analytic tool available to policymakers for this purpose is **fiscal impact analysis**, a formal comparison of the public costs and revenues associated with growth within a particular local governmental unit. Fiscal impact analysis is utilized frequently in large communities experiencing growth pressures on the metropolitan fringe, and it is being applied to open space preservation.

A review of fiscal impact studies by Robert Burchell and David Listokin concludes that generally residential development does not pay its own way. They found that nonresidential development does pay for itself, but is a magnet for residential development, and that open space falls at the break-even point. A study of eleven towns by the Southern New England Forest Consortium shows that on a strictly financial basis the cost of providing public services is more than twice as high for residential development as for commercial development or open space (see chart at right).

Care must be taken when evaluating the results of fiscal impact analyses for several reasons: the choices of methodology and assumptions greatly influence the findings; specific circumstances

vary quite widely from community to community; and fiscal impact analyses do not address secondary or long-term impacts. Nevertheless, fiscal impact analysis is a powerful and increasingly sophisticated planning tool for making decisions about land use alternatives at the community level.

The most direct measure of the economic value of open space is its **real estate market value**: the cash price that an informed and willing buyer pays an informed and willing seller in an open and competitive market. In rural areas, where highest and best use of land (i.e., most profitable use) is as open space, one can examine market transactions. In urban or urbanizing regions, however, where high-

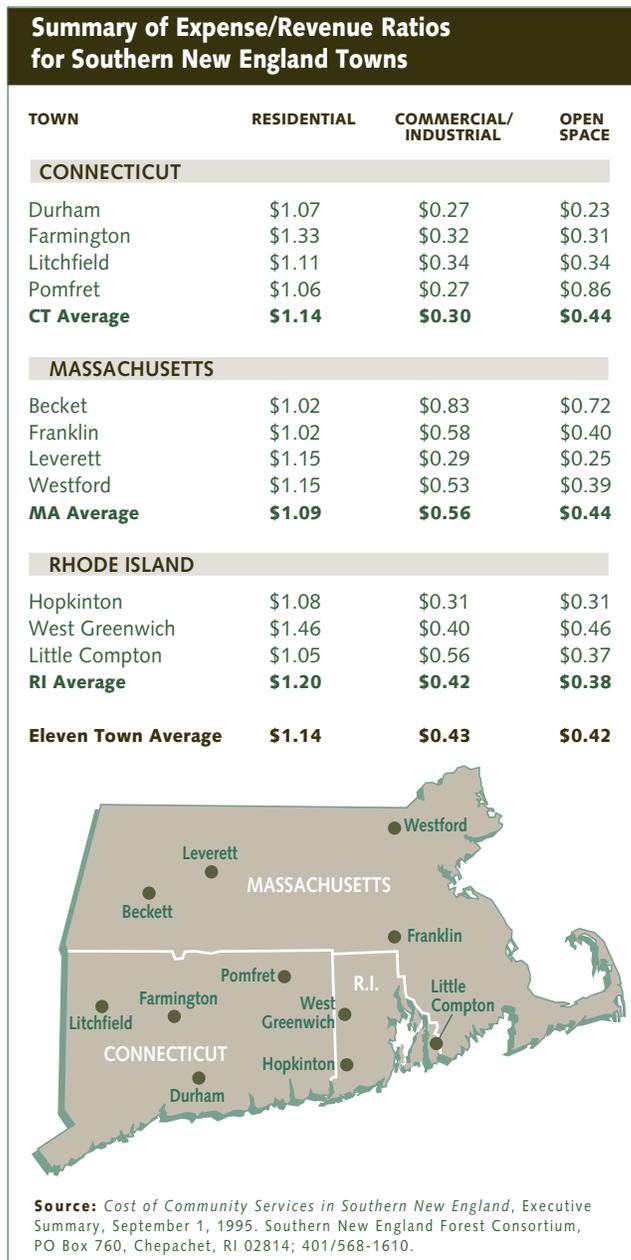
est and best use (as determined by the market) has usually been development, the open space value of land must be separated from its development value, especially when land is placed under a conservation easement.

Open space may also affect the surrounding land market, creating an **enhancement value**. Casual observers find evidence of enhancement value in real estate advertisements that feature proximity to open space amenities, and it is explicitly recognized by federal income tax law governing the valuation of conservation easements. A number of empirical studies have shown that proximity to preserved open space enhances property values, particularly if the open space is

not intensively developed for recreation purposes and if it is carefully integrated with the neighborhood. Enhancement value is important to the local property tax base because it offsets the effects of open space, which is usually tax-exempt or taxed at a low rate.

Open space possesses **natural system value** when it provides direct benefits to human society through such processes as ground water storage, climate moderation, flood control, storm damage prevention, and air and water pollution abatement. It is possible to assign a monetary value to such benefits by calculating the cost of the damages that would result if the benefits were not provided, or if public expenditures were required to build infrastructure to replace the functions of the natural systems.

An example of this approach is the Charles River Basin in Massachusetts, where 8,500 acres of wetlands were acquired and preserved as a natural valley storage area for flood control for a cost of \$10 million. An alternative proposal to construct dams and levees to accomplish the same goal would have cost \$100 million. In another study, the Minnesota Department of Natural Resources calculated that the cost of replacing the



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natural floodwater storage function of wetlands would be \$300 per acre foot.

Lands valued for open space are seldom idle, but rather are part of a working landscape vital to the production of goods and services that are valued and exchanged in markets. The **production value** resulting from these lands is often direct and readily measured, as is the case in crops from farms and orchards, animal products from pasture and grazing lands, and wood products from forests. The economic returns from production accrue directly to the landowner and often determine current and future land use alternatives.

Open space lands may also play a less direct but nonetheless important production role for market-valued goods that

depend in part on functions provided by private lands. Examples are the role of privately owned wetlands in fish and shellfish production and the role of private lands in supplying habitat for wild game. In addition to providing market-valued goods and services, direct and indirect production from open space lands supports jobs that are valuable to local, regional and national economies.

Conclusions

It will never be possible to calculate completely the economic value of open space, nor should it be. Certain intangible values lose significance when attempts are made to quantify them. Indeed, to incorporate into the real estate market the public values of open space without also developing a means of capturing those values for the public benefit would be counterproductive for conservation purposes.

Land use decisions ranging from the allocation of scarce conservation budgets to the property rights debate will be better informed if there is a more comprehensive understanding of the economic value of open space. Methods for determining and comparing value vary widely in level of sophistication and reliability. Some are based on long-established professional standards, while others continue to evolve. Given the inherent subjectivity of the term, any discussion of value must include a variety of disciplines, methodologies and approaches. The greatest benefit may be in prompting reassessment of the "conventional wisdom" about the economic consequences of development and conservation.

Charles J. Fausold is a fellow at the Lincoln Institute of Land Policy. **Robert J. Lilieholm** is an associate professor at Utah State University and a former visiting fellow at the Lincoln Institute. With partial support from the Boston Foundation Fund for the Preservation of Wildlife and Natural Areas they are reviewing and synthesizing existing information to develop a useful framework for considering the economic value of open space. For further information, email to cfausold@lincolninst.edu or rjl@cc.usu.edu.

Settlement Patterns

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circumstance, to live in the city. We are also concerned about the health of the tax base, which affects the capacity of the local government to deal with the needs of all its residents.

We also worry about land use patterns in the suburbs which both require and increase auto-dependency. This trend in turn leads to more auto travel, aggravates congestion, pollutes the air, and complicates our international relations because of our heavy dependence on imported oil.

We are in the throes of a revolution comparable in scope to the revolution in transportation technology that heavily influenced settlement patterns in the nineteenth and twentieth centuries. The transportation revolution, from ships and trains to cars and planes, made it possible for both workers and their employers to have a wider choice of locations.

The pace of the revolution in data processing and communications, which began slowly in the middle of the twentieth century, has quickened rapidly in recent years. We speak of a post-industrial information economy. By that we mean that information constitutes an ever-increasing share of the Gross National Product, both as "input" to the production of other goods and services and as "output" in the form of entertainment and related activities.

Household Location Decisions

How will settlement patterns be affected by the transition to an information economy? Let us first consider the worker's choice of a residential location. In classical urban economics, this choice is seen as a "trade-off" between the merits of a particular place in terms of quality of life and the cost of commuting to work. As the transportation revolution reduced the time and money costs of commuting, more and more workers were able to afford to locate in what they considered an attractive suburb that offered the lifestyle they preferred: a private home with a lawn, good schools, parks and open space, shopping facilities, and friendly neighbors.

The *New York Times* of July 14, 1996, reports that because of the revolution in communications and data processing, accompanied by company downsizing,

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COURSES

(See Request Form on page 7.)

Land Policy Forum on Vermont Interactive Television, September 21. (First of six monthly sessions at 12 locations around the state.)

Land Use In America: Reflections and Directions. November 20-21, Los Angeles, CA.

Municipal Open Space Acquisition: Preparing and Funding Successful Projects. January 17, Salt Lake City, UT.

PUBLICATIONS

(See Request Form on page 7.)

Burchell and Listokin, "Land, Infrastructure, Housing Costs and Fiscal Impacts Associated with Growth: The Literature on the Impacts of Sprawl vs. Managed Growth," 1995. Working Paper. \$7 plus shipping/handling.

Diamond and Noonan, *Land Use in America*, 1996. \$26.95 plus shipping/handling.

Endicott, *Land Conservation Through Public/Private Partnerships*, 1993. \$22.95 plus shipping/handling.

Faber, *On Borrowed Land: Public Policies for Floodplains*, 1996. Policy Focus Report. \$14 plus shipping/handling.

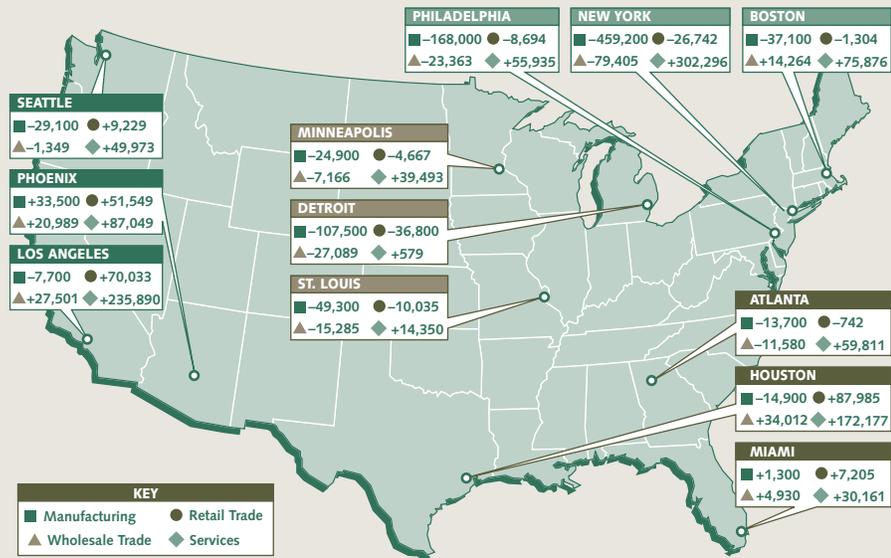
Fausold and Lilieholm, "The Economic Value of Open Space," 1996. Working Paper. \$7 plus shipping/handling.

Ingerson, *Managing Land as Ecosystem and Economy*, 1995. Policy Focus Report. \$14 plus shipping/handling.

Lilieholm and Kelson, "Buffers and Natural Areas: A Review of Issues Related to Wilderness," 1996. Working Paper. \$7 plus shipping/handling.



Central City Employment Change by Industry, 1967-87



Source: Based on *The Technological Reshaping of Metropolitan America*, p. 81-83, 85.

as many as 40 million people work at least part time at home, with about 8,000 home-based businesses starting daily.

Logic suggests that some of this newfound workplace freedom will manifest itself in location choices that favor places considered desirable, be they in the farther reaches of suburbia, exurbia, or rural America. On the other hand, if these dispersed self-employed workers end up commuting less, their freedom may not “cost” the society more in terms of congestion and pollution.

Business Location Decisions

What about the conventional company and its location decisions? Like the household, the company does a “balancing” act when it chooses a location. From the perspective of product distribution, Place A might be preferred. From the perspective of the inputs of materials, Place B might be ideal. From the point of view of labor costs, Place C might be best. For tax purposes and related “public” issues, Place D might be most beneficial.

If the entire company has to be in one place, then compromise is inevitable. But if the communications revolution permits the “dis-integration” of the company via the physical separation of functions or the “outsourcing” of particular functions, then what used to be one location decision becomes a multiplicity of decisions, each component responding to a compelling argument for a particular place.

The classic example is the “front” office of a bank or insurance company in the midst of a congested city center with the “back” office in a rural area in another region or even in another country.

Settlement Trends

How these changes in household and business location choices will ultimately affect settlement patterns in metropolitan America was the subject of a major study by the Office of Technology Assessment (OTA), an agency that served the U.S. Congress for many decades but was abolished by the Congress in 1995. The summary chapter in *The Technological Reshaping of Metropolitan America* states that “technology is connecting economic activities, enabling them to be physically farther apart, reducing the competitive advantage of high-cost, congested urban locations, and allowing people and businesses more (but not total) freedom to choose where they will live and work.”

But OTA concludes that “the new wave of information technologies will not prove to be the salvation of a rural U.S. economy that has undergone decades of population and job loss as its natural resource-based economy has shrunk.” Rather, most economic activity will locate in large and medium-sized metropolitan areas.

“Technological change. . .threatens the economic well being of many central and inner cities, and older suburbs of metro-

politan areas,” the report continues. Overall, the trends suggest that these places will find it hard to compete without economic development policies designed to offset their competitive disadvantages.

In short, the OTA expects that, the communications revolution notwithstanding, the 2000 Census will report a continuation of the trends manifested throughout the latter half of the twentieth century. The favored locus of activity in both residential and business terms will be the outer suburbs of metropolitan areas. Given our concerns with the adverse effects of prevailing settlement patterns, the challenge to land policy is greater than ever.

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Thomas Horan is director of Applied Social and Policy Research at Claremont Graduate School in Claremont, CA. He can be reached via email at horant@cgs.edu.

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COURSES

(See Request Form on page 7.)

Land Use in America: Reflections and Directions. November 20-21. Los Angeles, CA.

PUBLICATIONS

(See Request Form on page 7.)

“Bae and Richardson, “Automobiles, the Environment and Metropolitan Spatial Structure,” 1994. Working Paper. \$5 plus shipping/handling.

DeGrove and Miness, *The New Frontier for Land Policy: Planning and Growth Management in the States*, 1992. \$18.95 paperback plus shipping/handling.

Hughes, “Urban Employment Growth Patterns in Nine Large Metropolitan Areas, 1977-1987,” 1995. Working Paper. \$7 plus shipping/handling.

REFERENCE

The Technological Reshaping of Metropolitan America. Washington, D.C.: U.S. Congress, September 1995. \$15.00. Available from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954; 202/512-1800.

The New Urbanism Challenges Conventional Planning

WILLIAM FULTON

The New Urbanism has captured the imagination of the American public like no urban planning movement in decades. Amid great fanfare, New Urbanists are seeking to redefine the nature of the American metropolis by reintroducing traditional notions of neighborhood design and fitting those ideas into a variety of urban and suburban settings.

The New Urbanism began as a reaction to conventional suburban planning as it has been practiced in the United States since the 1940s. New Urbanists view the decentralized, auto-oriented suburb as a recipe for disaster. They blame these suburbs for ever-increasing congestion on arterial roads, a lack of meaningful civic life, the loss of open space, limited opportunities for children and others without cars, and a general discontent among suburbanites.

As the latest in a long line of reform movements that have sought to establish new planning and design principles that may be applied to metropolitan areas and, especially, to new suburban neighborhoods, the New Urbanism owes much to the City Beautiful and Garden City movements of the early twentieth century. The “neotraditional” view of urban planning that began in the early 1980s with the widely publicized new town of Seaside, Florida, has since matured into the New Urbanism movement of the 1990s.

Many different sets of planning and design principles are circulating around the New Urbanism banner, but most definitions include the following ideas:

- walkable neighborhoods oriented around the five-minute walk;
- primary orientation around public transit systems;
- greater integration of different types of land uses at the neighborhood level.

In addition, most New Urbanists claim to be committed to the concepts of strong citizen participation, affordable housing, and social and economic diversity, though these ideas do not fit so neatly onto a list of neighborhood design

characteristics. In its rhetoric, the New Urbanism strives for a kind of utopian social ideal, although most New Urbanists focus on a community’s physical infrastructure in the belief that community design can create or influence particular social patterns.

Promises and Problems

The New Urbanism is still in its infancy, and there remains a great deal of skepticism about what its proponents seek to achieve. Although millions of Americans

aspect of the New Urbanism, which is often “sold” to public officials based on its supposed transportation benefits. Assertions such as reduced dependence on the automobile, increased transit use, shorter trips, and a more flexible hierarchy of streets make common sense, but they are not yet backed up by much empirical evidence. Perhaps the best that can be said is that New Urbanist ideas may be a necessary but not sufficient pre-condition to change the way people travel.

Planning and Codes: New Urbanists often criticize American development codes as perpetuating suburbia’s auto-oriented nature. Codes regarding segregated land uses, street widths, setbacks and other requirements are often the province of local officials, such as fire chiefs and traffic engineers, who are loathe to change them. Some New Urbanists have worked successfully with code enforcers to find common ground in order to permit unconventional projects to proceed, yet, many aspects of planning and codes remain incompatible and contentious.

Regionalism: New Urbanists have struggled to move the public perception of their

movement beyond the simple idea of designing suburban neighborhoods toward focusing on metropolitan areas. Proponents and critics alike fear that widespread application of the movement’s design principles apart from a regional context may simply cause suburban sprawl to be replaced by “New Urban” sprawl. Many New Urbanists advocate urban and suburban redevelopment and infill projects, and some support such regulatory tools as urban growth boundaries.

Marketing: Many previous reform movements in urban planning have failed because their ideas did not enjoy widespread acceptance in the marketplace, and New Urbanism is facing a similar challenge. Real estate marketing experts say that many New Urbanist projects proceeded with little market research because the developers (who were New Urbanist devotees) simply believed that the idea



THE STREETScape OF THE NEW URBANIST COMMUNITY OF KENTLANDS IN GAITHERSBURG, MARYLAND, REFLECTS THE FEDERALIST STYLE OF MANY OLDER NEIGHBORHOODS IN THE MID-ATLANTIC REGION.

ALAN KARCHNER FOR DPZ ARCHITECTS AND TOWN PLANNERS, MARYLAND

live in “old urban” neighborhoods, fewer than 2,000 live in new neighborhoods built strictly according to New Urbanist principles. Many critics believe that, while the New Urbanism contains many attractive ideas, it may have difficulty dealing with a wide range of contemporary issues.

Scale: The traditional neighborhoods that the New Urbanists hope to replicate are characterized by compactness, small scale and diversity of building types. But, increasingly, the economic and lifestyle demands of urban and even suburban life seem to require facilities on a massive scale, such as big-box retailers and their industrial equivalents. Many New Urbanists concede that large-scale operations will inevitably be auto-oriented, but they still claim their ideas can work for smaller-scale retailers.

Transportation: Transportation is perhaps the most contentious single

would sell itself. Now they see that selling New Urbanism requires at least as much marketing effort as selling a conventional subdivision. New Urbanists have also learned the hard way that the promise of a diversified community, with many types and prices of homes, retail stores within walking distance, and other community amenities, requires a highly sophisticated effort to bring all the components "on line" in the right sequence.

A Powerful Idea

Although it is often advertised as a panacea, the New Urbanism is only one alternative to suburban sprawl. It will probably function most successfully in a broader planning context that may include significant investments in transit, incentives to reinvest in the inner city, and disincentives to build at the metropolitan fringe.

At the same time, it is important to appreciate the power of the New Urbanism as an idea. Perhaps the most refreshing aspect of this movement is that it promotes a positive image of "town life" that includes the public as well as the private realm. In a world where a "lack of community" is often blamed for many social ills, this is no small achievement.

William Fulton is editor of *California Planning and Development Report*, contributing editor of *Planning* magazine, and a member of the Lincoln Institute Editorial Advisory Committee. This article is excerpted in part from the Lincoln Institute Policy Focus Report, *The New Urbanism*, to be published in October 1996.

FYI

COURSES

(See Request Form)

Metropolitan Development Patterns: Alternatives to Sprawl. November 14, Atlanta, GA. (Cosponsored with the Georgia Conservancy)

Metropolitan Development Patterns: Alternatives to Sprawl. December TBA, Providence, RI.

PUBLICATIONS

(See Request Form)

Downs, *New Visions for Metropolitan America*, 1994. \$28.95 hardcover or \$14.95 paperback plus shipping/handling.

Fulton, *The New Urbanism: Community Planning by Design*, 1996. Policy Focus Report. \$14 plus shipping/handling.

Young, *Alternatives to Sprawl*, 1995. Policy Focus Report. \$14 plus shipping/handling.

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COURSE CALENDAR

September

21
Land Policy Forum on Vermont Interactive TV
(First of six monthly sessions at 12 locations around the state)

For information about these Lincoln Institute programs, call Ann Long, registrar, at 800/LAND-USE (800/526-3873) or 617/661-3016 x127.

October

8
A New Era in Tax Revolts: Current Economic, Legal and Political Perspectives
(A special session at the Annual Conference of the International Association of Assessing Officers; call Gail Friedman at IAAO at 312/819-6141 for registration information)
Houston, TX

November

14
Metropolitan Development Patterns: Alternatives to Sprawl
(Cosponsored with the Georgia Conservancy)
Atlanta, GA

18
Property Tax Revision and Reform: The Outlook in Indiana after the St. John Decision
(Cosponsored with Quality for Indiana Taxpayers)
Indianapolis, IN

20-21
Land Use in America: Reflections and Directions
Los Angeles, CA

December

TBA
Metropolitan Development Patterns: Alternatives to Sprawl
Providence, RI

January

17
Municipal Open Space Acquisition: Preparing and Funding Successful Projects
Salt Lake City, UT

23-24
Legal Issues in the Valuation of Property for Tax Purposes: A Casebook Review
Fort Lauderdale, FL

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