

Reining in urban sprawl.(includes related article on the Kentlands and on Maine)(Cover Story)

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A discussion on the environmental impact of urban sprawl is presented. Urban sprawl results in loss of green space, greater pollutant runoff into waterways and increased traffic leading to congestion and air pollution.

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WHAT BE DONE TO TACKLE THIS GROWING PROBLEM?

Urban sprawl's environmental consequences often have been overlooked by environmentalists amid concerns about other problems. Yet conditions in metropolitan areas in the United States may be the best indicator of the environmental quality of our lives. Many U.S. residents believe that those conditions are deteriorating in important respects, including loss of green spaces, added runoff of pollutants into waterways, increased traffic that causes congestion and air pollution, and a less pleasing landscape. As a result, there has been a surge of actions aimed at limiting sprawl, including a host of measures approved by voters in November 1998.

People care about urban sprawl because, from an everyday perspective, life in the United States is a metropolitan life. Officially designated metro areas now account for 19 percent of our nation's vast land area, compared with just 9 percent in 1960.(1) Four out of five U.S. citizens live in a metro area and more than half live in an area with more than one million people. These are the places where many of us spend most of our lives.

The Nature of the Problem

The process and consequences of urban sprawl are well illustrated by the situation in the Washington, D.C., area. The Washington metro area includes the city of Washington and parts of Maryland, Virginia, and West Virginia.(2) The area's population climbed from 3.1 million in 1980 to 4.5 million in 1995, an increase of 47 percent in just 15 years.(3) All of that growth occurred in suburbs and exurbs; the population of the city of Washington actually declined. A second major metropolitan area, Baltimore, Maryland, has its center just 40 miles northeast of Washington. It too is growing. The two areas have merged to such an extent that the Census Bureau has declared that they comprise a huge "Washington-Baltimore Consolidated Metropolitan Statistical Area." With a total population of more than seven million, it is the nation's fourth largest metro area, trailing behind New York, Los Angeles, and Chicago.

Growth in the Washington, D.C., area has not consisted simply of "suburban sprawl." Washington also has seen another kind of growth, namely the creation of outlying, unincorporated urban cores - consisting largely of shopping malls, office complexes, and parking lots. Each of these centers includes as much office and shopping space as a small to medium-sized city. Author Joel Garreau has called these entities "edge cities."(4) Garreau asserts that the first edge city was the one at Tyson's Corner in Washington's Virginia suburbs. By the early 1990s, the unincorporated complex at Tyson's Corner contained more office space than the central business district of St. Louis or Miami, and the Washington area as a whole included at least 23 full-blown or emerging edge cities, more than any other U.S. metropolitan area except Los Angeles.(5)

Sprawl's Environmental Consequences

Growth has greatly affected the environment and quality of life in the Washington area. In the outlying suburbs of Washington, businesses, shopping centers, and residential developments encroach on land that recently consisted of farms and woods. Mass transit is scarce in these areas, and highways have expanded and reexpanded to meet increased demand. But larger highways have failed to reduce congestion. In 1998, a federally sponsored study found that traffic delays caused the average resident of the Washington area to waste two full work weeks per year while stuck in traffic. The average estimated cost of travel delays and excess fuel consumption due to congestion amounted to \$1,055 for each resident of the metropolitan area.(6)

Congestion and the extra driving necessitated by sprawling development contribute to air pollution. Vehicles are the main source of air pollution in the Washington region, and vehicle exhaust remains a serious problem. The biggest threat is from surface-level ozone, the main ingredient of urban smog. Nearly two million Washington area residents are at high risk for adverse health effects such as pneumonia and asthma attacks due to high levels of ozone. Even healthy residents have been advised to jog in the early morning on "bad air" days.

Sprawl has other environmental impacts. Waterways receive increased pollution and are more prone to flooding

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because a large proportion of the land in the Washington area has been paved over, causing runoff instead of absorption. As larger numbers of lawns are fertilized and dosed with pesticides, more pollutants are washed into the region's waterways. Wildlife habitat has been eliminated or degraded.(7) Natural areas have shrunk even as increased population and leisure time feed the demand for nature-oriented recreation. Aquifers are under pressure. The area's premier recreational resource and fishery, the Chesapeake Bay, is straggling to maintain the water quality on which recreation and fishing depend.

Thus, even as Washington area residents become richer in material terms, the quality of their lives is diminishing in important respects. There is no sign of an end to growth in the region. The population of the Washington area is expected to grow at least 25 percent during the next quarter-century, exceeding 5.6 million by the year 2020. The most rapid increase is anticipated in the outer suburbs, whose total population is expected to rise about 80 percent. Traffic in the metro area is projected to increase by 70 percent during the same period, while highway capacity expands by just 20 percent.(8) Unless growth patterns change, sprawl and its negative environmental impacts will continue and traffic congestion will get worse. The most touted solution to congestion is a proposal to widen Washington's famed beltway to 12 lanes and to add an "outer beltway" linking the outer suburbs. Those ideas have encountered strong opposition, based in part on evidence that past highway expansions have led to more sprawl and eventually more congestion.

Washington is not alone. Urban sprawl, traffic congestion, air and water pollution, and a less aesthetically pleasing landscape are familiar problems in many parts of the United States. Until recently, these conditions have attracted relatively little attention. Yet the implications are profound for the more than 200 million U.S. residents who live in metropolitan areas. (See the box on this page for a list of the 10 most sprawl-threatened cities in the United States.) If the quality of life in these places is unsatisfactory, so is our national quality of life. The question, on a long-term national scale, is whether the growth required to accommodate the 50 percent increase in the U.S. population that is expected by the middle of the 21st century will consist largely of urban sprawl or will take some other form. The global implications are clear: Sprawl leads to higher fossil-fuel consumption in motor vehicles and residences and adds to U.S. emissions of the greenhouse gases that may be warming the Earth's atmosphere.

Historical Trends

By the 1960s, suburban sprawl had become the dominant form of growth in U.S. metropolitan areas. There was some concern about its environmental and social impacts (however, the perceived "crisis of the cities" in the second half of the 1960s had to do with poverty and racial tensions, not with sprawl). Some states and communities tried to reduce the adverse effects of sprawl, mainly through efforts to acquire and protect open spaces. William H. Whyte, a leader in the open space movement, reviewed the situation in his 1968 book, *The Last Landscape*. He concluded that pessimists who predicted that low-density sprawl would continue until the end of the century were wrong because "the evidence is staring us in the face that the basic growth trends . . . are toward greater centralization and toward higher rather than lower density."(9)

Whyte, an astute social observer who in the 1950s authored the highly acclaimed book *The Organization Man*, was profoundly mistaken. Since 1968, the nation as a whole has witnessed extensive, low-density sprawl like that which occurred in the Washington, D.C., area. The proportion of the U.S. population living in metro areas increased from two-thirds to four-fifths. The low-density character of this growth is suggested by the increase in the total metropolitan land area, which rose by 80 percent, to approximately 675,000 square miles.

These figures reflect the ongoing creation of suburbs and exurbs many miles from central cities. Sprawl has been so far-reaching that it caused once separate metro areas to blend together: Washington with Baltimore, Philadelphia with Wilmington, San Francisco with San Jose, New York and Los Angeles with numerous cities in their regions. At the same time, the "edge city" pattern of development has seen the emergence of outlying urban entities that have made suburbs rather than central cities the centers of growth for stores, hotels, office complexes, and jobs, as well as highways and traffic.

Why So Little Has Been Done

Some effects of urban sprawl are immediate and serious. Air pollution poses threats to health. Extreme traffic congestion makes metropolitan life intolerable. Steps have been taken in every large metro area to address these problems. In the Washington region, actions against air pollution include stricter vehicle inspections, the required use of less polluting gasoline, and

measures (such as High Occupancy Vehicle lanes) to encourage efficient use of motor vehicles. Congestion has been relieved, at least temporarily, by building more highways. Both problems have been attacked through

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efforts to increase reliance on mass transit, including expansion of the region's Metrorail (subway) system; maintaining bus and Metrorail fares at relatively low levels; establishing new bus routes to serve those who commute from one suburb to another; and expanding the number of parking spaces at outlying rail stations.

Like most U.S. metro areas, however, the Washington region has seen relatively few actions aimed at reducing sprawl as opposed to alleviating its symptoms. Of the three main regions that make up the area, only Maryland has forcefully acted against sprawl (discussed below and in the box on this page). The District of Columbia, which is governed to a considerable extent by Congress and not by local officials, has been plagued by other problems, and the political culture in Virginia has tended to foster sprawl instead of limiting it.

It may seem obvious that metropolitan regions should act to prevent or minimize sprawl, not just deal with its symptoms. Most other industrialized countries have followed that approach. But there are understandable reasons why this seldom has occurred in the United States.

In some nations, there is broad agreement on the shape of cities: Great Britain believes they should be surrounded by greenbelts; Germany reins them in to preserve rural landscapes; and most of Europe abhors the cluttered strip developments that surround U.S. cities. In the United States there is no such consensus. The motto of the Sierra Club's antisprawl campaign is simply "Better communities, less traffic"; and some analysts argue that U.S. sprawl has benefits - such as shorter suburb-to-suburb commutes, low-density residential lifestyles, more affordable housing and commercial space, and the freedom and flexibility of personal transportation--that may outweigh its costs.(10)

When advanced, proposals to reduce sprawl inevitably run into political opposition. Customary opponents are development interests and those who believe in the right to do whatever one chooses with one's property. Developers have deep pockets and can be politically influential. The property rights movement also has amassed political power, especially in the western United States. Politicians have been reluctant to challenge these interests. Representative Earl Blumenauer (D-OR) has said that some of his colleagues "would sooner gargle formaldehyde than say the words 'land use.'"(11)

The government system poses additional obstacles. Urban sprawl and its consequences are areawide phenomena, reflecting the fact that all parts of a metro area are connected ecologically, economically, and via transport

networks. (Various kinds of connections are the criteria the Census Bureau uses to define a metro area.) Yet governmental power within a metro area - the power that must be exercised to limit sprawl - usually is divided among a welter of local jurisdictions such as cities, counties, towns, and unincorporated entities. Many metro areas straddle state boundaries, including five of the seven largest areas: New York, Chicago, Washington, Philadelphia, and Boston.

Because of this mismatch, the federal government has required that the governmental entities in a metro area work together to combat air pollution and coordinate transportation. But in other matters, cooperation is usually voluntary and is often minimal. After all, many people choose to live in suburbs and exurbs to escape the problems of the central city. These residents and their governments are loath to acknowledge the reality of interdependence.

Efforts to Control Sprawl

Despite these handicaps, a growing number of U.S. states and metropolitan regions have taken broad-gauged initiatives to reduce sprawl.(12) Major efforts began in the 1970s, when Vermont and Oregon enacted land-use laws that were intended in part to limit sprawl. They have been joined by other states, including Florida, Georgia, Hawaii, Maryland, New Jersey, Rhode Island, Tennessee, and Washington.(13) (See the box on page 30 for an example of why even places such as the state of Maine needs to combat sprawl.)

Oregon's law, looked to by some as a model, requires every city to designate an urban growth boundary, a line drawn around the city at a distance sufficient to accommodate expected urban growth. Beyond the boundary, urban development is prohibited. The law also requires cities to identify "urban reserves" outside the growth boundary to meet possible needs for urban expansion. Other states, such as Vermont, regulate land use by requiring permits for specified types of development. Still others, including Maryland and New Jersey, exert pressure on local jurisdictions (by such means as planning requirements and targeting of state funds) to channel growth into areas that already have established infrastructures. Usually accompanied by programs to acquire strategically located open spaces, this approach is known as "smart growth." Maryland's smart growth initiative, adopted in 1997, was a significant effort to stem urban sprawl in the Washington-Baltimore region.(14)

Some metro areas have instituted areawide controls to

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manage growth. The leading example is Portland, Oregon. Pursuant to Oregon's land-use law, citizens in 1979 adopted a growth boundary that drew a line around an area covering 364 square miles, or 232,000 acres, including 24 municipalities and parts of three counties. The citizens of the area created a directly elected regional government, called Metro, that serves all residents of the area within the growth boundary, a population that now totals about 1.3 million. The main function of the Metro regional government is to manage growth and maintain the growth boundary (including possible expansions of the boundary to meet anticipated needs for new housing). It also has major responsibilities for transportation, water supply, and solid waste management.(15) The idea behind the growth boundary is that, by limiting the area where urban development is permitted, housing will become denser as the population grows instead of sprawling. This will preserve the environmental quality and aesthetic character of the areas beyond the boundary. Greater population density within the boundary will shorten commutes and increase the efficiency of public transportation. It also will reduce the cost of providing public services because of the need to install fewer miles of sewer pipes, electric wires, and telephone lines.

After adopting the urban growth boundary, Portland required developers to "fill in" between existing structures instead of constructing in new areas. That policy reduced the average lot size for detached houses from 13,000 square feet to 7,400 square feet (roughly six houses per acre instead of three).(16)

Within the boundary, growth patterns during the 1980s were similar to those in other parts of the country: crowded highways lined by strip developments, shopping malls surrounded by parking lots, residential developments separated from shopping and working areas, and the appearance of edge cities. By the early 1990s, planners foresaw that continuation of those patterns would cause the Portland region to overflow its growth boundary early in the 21st century, swallowing the greenbelt and creating the sprawling metropolis that area residents wanted to avoid. In 1992, citizens authorized the preparation of a 50-year growth management plan. The goal was basically to maintain the urban growth boundary and greenbelt that were established in 1979, accommodating 67 percent more people inside the boundary in the year 2040 than in the early 1990s (1.8 million instead of 1.08 million) while residential land use grows by less than 10 percent.

The Portland plan, adopted in 1997 after wide consultation with area citizens, aims to build on beneficial aspects of edge city development, such as shorter suburb-to-suburb commutes, while eliminating its huge drawback, total

dependence on the automobile. The average size of lots in residential neighborhoods will fall further, so as to accommodate about 30 percent more people per acre of land. More housing will be multifamily. Zoning changes will encourage development that mixes homes with shopping and work places, enabling people to live near the places where they work and shop. Much of the region's future development will occur in moderately dense centers. Each large neighborhood of 20,000 or so people will have an attractive, accessible "town center" where daily business can be transacted. The centers will be friendly to bicyclists and pedestrians and well served by mass transit.

The growth boundary/metro government approach adopted in Portland often has been cited as a paradigm for other cities.(17) Urban planner Jonathan Barnett believes that a growth boundary is a sine qua non for controlling urban sprawl.(18) Others suggest the necessity of a government that has regional powers and the need for actions by states because "[s]tates alone have the ability to see the regional picture and have the legal reach to sort out complicated political and economic issues."(19) Two decades of experience suggest that the Portland approach, which combines these ingredients, may be able to reduce sprawl and make a metro area more livable. But some analysts contend that the growth boundary approach is misguided and bound to fail in the long run.(20) It is certain that Portland faces significant problems: Higher-than-projected rates of population growth, caused in part by Portland's reputation as a pleasant place to live;(21) a rise in housing prices that makes it hard for people at the lower end of the income scale to find affordable housing; increased auto traffic, due in part to long-distance commuters who choose to live in outlying communities and drive across the greenbelt to work; continual pressures from a variety of interests to relax the controls on metro area growth, as it becomes clear that growth management has costs as well as benefits; and the fact that the entire area within the growth boundary and governed by the Metro regional government is imbedded in a larger consolidated metro area (CMSA) that extends southward from Vancouver, Washington, all the way to Oregon's capital of Salem. Increased commuting within the CMSA could result in more congestion and air pollution. The Vancouver, Washington, area accounts for about one-sixth of the area's population and is the fastest-growing part of the region, yet it is not included in the growth boundary or Metro regional government and is subject to less stringent growth controls than the rest of the region.(22)

Other areas besides Portland have recognized the need for regional cooperation. State legislators in Minnesota concerned about sprawl and other problems in the

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Minneapolis-St. Paul region, for instance, have revitalized the Metropolitan Council regional government and required regionwide land-use planning.(23) Citizens in other metro areas have forged coalitions that cross jurisdictional boundaries. But Oregon is thus far the only state that has taken from local jurisdictions the power to manage growth throughout a metropolitan region and entrusted that power to a regional authority.(24)

Public Concern

The issue of urban sprawl has captured public attention in many parts of the United States. In addition to the efforts just described, in November 1998, voters approved more than 100 antisprawl measures in places as diverse as Arizona, California, Florida, Michigan, New Jersey, Rhode Island, and Texas.(25) The most common theme was authorization of funding to acquire parks, farmland, and other types of open space.

There is no question that federal actions affect sprawl. Early federal policies that promoted highway construction and home ownership also promoted sprawl.(26) Beginning in the 1970s, however, federal clean air regulations began to limit sprawl by such means as requiring permits for large shopping centers and other facilities that attract auto traffic. Federal environmental and transportation laws now permit mass transit to compete with highways for funding; require metro regions to prepare regionwide transportation plans; and compel federal decisionmakers to consider the environmental impacts of proposed highways and other projects that receive federal support.

In January 1999, the Clinton administration proposed a federal "livability agenda" aimed at combating urban sprawl. The proposed initiatives included \$700 million in tax credits to increase funding for mass transit; support local partnerships that pursue smart growth strategies across jurisdictional lines; and enable communities to issue bonds to protect green spaces, protect water quality, and clean up abandoned industrial sites.

Public concern has caused the issue to be taken up by environmental organizations, religious and business groups, foundations, and political leaders at the local, state, and national levels.(27) Antisprawl proposals are currently on the table in many states and metro areas.(28) For instance, Maine has studied the problem and is holding regional conferences to consider whether additional steps are needed.(29) In Pennsylvania, business interests and environmentalists are pressing for state actions to limit sprawl. Early in 1999, Pennsylvania's Governor Tom Ridge announced a "growing greener" initiative to redirect the expenditure of more than \$1 billion

in state funds. The Metropolis Project of Chicago's Commercial Club is urging Chicagoans to address the problem. And in greater St. Louis, a church-based coalition is lobbying for a growth-management law to curb sprawl.

What Next?

Because so many U.S. citizens are fed up with the consequences of low-density sprawl, more antisprawl initiatives seem inevitable. The challenge is to ensure that they are effective. Relatively little has been written on the subject and most U.S. efforts are in their infancy, making evaluation difficult.(30) Many people are convinced that sprawling, low-density development in metropolitan areas is undesirable. Yet only the state of Oregon has firmly said "no" to that form of development. Other states have put in place incentives or regulatory mechanisms to discourage low-density sprawl, but even in states such as Vermont, where regulations have been in place for decades, there are complaints that they are too weak and that sprawl is continuing.

Experts may be correct in concluding that an urban growth boundary and a government with regional powers are necessary if a metro area is to move decisively away from low-density sprawl as a pattern of growth. However, it appears that few places in the United States are ready to adopt the approach taken in Oregon. Experience and common sense suggest a number of things that can be done to reduce sprawl and ameliorate its effects without going so far, as well as some approaches that are not likely to work.

Green spaces surely are part of the answer, but in the absence of other measures, creating green islands in a sea of sprawl is unproductive. There must be innovative thinking about the role of mass transit in an era of edge cities and "side to side" suburban commutes. The smart growth (or brown field) strategy of steering growth into areas with established infrastructures seems to make sense. So do actions to enhance the attractiveness of central cities as places to live, work, and shop. Building more highways is only a temporary answer to the problem of traffic congestion and may exacerbate other problems. In part, sprawl has been fostered by public subsidies. It can be alleviated by removing subsidies through such measures as requiring developers to pay the marginal costs of the infrastructure improvements that are needed to support developments.

Growth controls that apply to only one part of a metro area may push undesirable forms of development to other parts. Therefore, areawide controls, which may depend on a state-approved framework, or even an interstate

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agreement, are desirable. Antisprawl measures will be effective only if they continue for decades, so broad public support is essential. Efforts to reduce sprawl in a metro area are likely to succeed only if residents agree about the area's long-term future. Metro areas are dynamic entities, so one-time solutions will not suffice. Institutions and processes that can adjust to changing conditions without losing sight of long-term goals will be a necessity.(31)

Nongovernmental organizations can foster concerted pressure for constructive actions throughout a metro area. For example, New York's Regional Plan Association has worked since 1923 to prepare successive regional plans for the far-flung New York metro area and promote adherence to the plans through persuasion and citizen pressure.(32) The task is daunting in a metro area that includes some 20 million people and extends across three states, but the first two regional plans led to important advances in open space preservation and revitalization of mass transit. The Third Regional Plan, promulgated in 1996, added goals in such areas as employment and governance.

Since the 1970s, a citizen watchdog group called 1,000 Friends of Oregon has played a crucial role in defending Oregon's pioneering land-use law from repeated attacks. Other states, including Florida, Maryland, Ohio, Washington, and Wisconsin, have seen the emergence of "1,000 Friends" groups advocating stronger controls on land use. The Sierra Club, widely considered to be the most effective grassroots environmental pressure group, has initiated a "Challenge to Sprawl" campaign that is pushing for action in a number of metro areas.(33)

Efforts by local governments within a metro area can help to mitigate sprawl and its effects. Montgomery County, Maryland, which lies just north of Washington, D.C., and is home to 800,000 people, has preserved farmland and green spaces more successfully than any other jurisdiction in the Washington area. Montgomery County relies in part on transferable development rights, a sophisticated mechanism that enables farmers to receive compensation from developers for not developing their land and continuing to farm it.(34) In the 1970s, Boulder, Colorado, a city of about 100,000 within the Denver metro area, established a growth boundary enforced by limitations on the provision of municipal water and sewer services. This, in turn, has maintained Boulder as a compact city with a clear identity. Yet it should be remembered that Montgomery County and Boulder are parts of sprawling metro areas and suffer from areawide effects of sprawl, such as air pollution and traffic congestion, which they cannot deal with on their own.

There is still much to learn. As skeptics have suggested, there is a need for sharper analysis of the costs and benefits of antisprawl measures, both generally and in particular areas. Studies of alternative ways of tackling the problem, studies that ask tough questions about costs, benefits, and long-term sustainability, should be undertaken.

Yet it would be a mistake for political and civic leaders to treat sprawl as an academic issue. Every large metro area suffers from sprawl and its consequences. Citizens are likely to call for swift responses. To avoid hurried, piecemeal actions, leaders would be well advised to organize areawide discussions of problems and possible solutions, together with sharply focused analyses of relevant issues. Nongovernmental institutions and experts can play important roles in these debates. Because a state framework may be essential to control sprawl effectively, states also would benefit from wide-ranging discussions and analyses. Those that neglect the issue may be forced to adopt ill-considered solutions in response to subsequent voter demands.

In view of the important role of the states, Congress should consider the merits of federal grants to support statewide land-use planning that meets specified criteria. Embodied in the federal Coastal Zone Management Act, that approach has prompted every coastal state to plan for its coastal zones. A similar grant program to encourage statewide land planning was proposed by President Richard Nixon and was almost passed by Congress during his administration.

There are other ways in which the federal government can play a supportive role without prescribing specific solutions.(35) It could take the initiatives proposed by the Clinton administration in its "livability agenda." It can ensure that federal policies and decisions on such matters as pollution control, transportation, taxation, home ownership, and housing tilt against sprawl and do not contribute to it. It can support officials who take areawide approaches to metropolitan problems. A substantial tax on fossil-fuel energy, recommended by many environmentalists on other grounds, would influence transportation and housing choices in ways that would slow urban sprawl.

The "most sprawl-threatened" large cities in 1998 according to the Sierra Club:

1. Atlanta, Ga. 2. St. Louis, Mo. 3. Washington, D.C. 4. Cincinnati, Ohio 5. Kansas City, Mo. 6. Denver, Colo. 7. Seattle, Wash. 8. Minneapolis-St. Paul, Minn. 9. Fort Lauderdale, Fla. 10. Chicago, Ill.

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SOURCE: This list can be found at

http://www.sierraclub.org/transportation/sprawl/sprawl_report/metro.html

The criteria used to rank the cities can be found at

http://www.sierraclub.org/transportation/sprawl/sprawl_report/about.html and <http://www.uli.org/presroom/hudnut/web1.htm>, accessed 30 January 1999.

NOTES

1. As of 1990, the total metropolitan land area in the United States was 673,057 square miles, while the nonmetropolitan land area totalled 2,893,281 square miles. U.S. Bureau of the Census, Statistical Abstract of the United States: 1995 (Washington, D.C.: U.S. Government Printing Office, 1995), appendix II, tables A-C. These tables also contain data for past decades.

2. U.S. Bureau of the Census, note 1 above, table E, page 969.

3. That growth stemmed both from increases in the populations of the cities and counties that made up the metro area in 1980 and geographic expansion of the metro area to include 11 additional counties and one additional independent city. For definitions of the Washington, D.C., metro area in 1995 and 1980, U.S. Bureau of the Census, note 1 above, and U.S. Bureau of the Census, Statistical Abstract of the United States: 1981 (Washington, D.C.: U.S. Government Printing Office, 1981), appendix II, 925. Population figures are from relevant editions of the World Almanac.

4. J. Garreau, *Edge City* (New York: Anchor Books, 1991).

5. *Ibid.*, pages 343-422, 437-38.

6. T. Lomax and D. Schrank, *Urban Roadway Congestion, 1982 to 1996* (College Station, Tex.: Texas Transportation Institute, 1998).

7. A description of sprawl-related threats to habitats in the region around Washington, D.C., can be found in the "Conservation Alerts" section of the website of the Audubon Naturalist Society, <http://www.wildplaces.com>.

8. See A. Reid, "Area Traffic Stuck in a Costly Jam," *Washington Post*, 10 December 1996, A1. One Washington-area trend that causes traffic growth is the tendency for new jobs to be located in the suburbs; this requires increasing numbers of "sideways" commutes on routes not served by mass transit.

9. W. Whyte, *The Last Landscape* (Garden City, N.Y.: Doubleday, 1968), 5-6.

10. P. Gordon and H. Richardson, "Prove It: The Costs

and Benefits of Sprawl," *Brookings Review* 16, no. 3 (1998): 23-26; and B. Hudnut, "Q: Is There Such a Thing as Good Sprawl?" (August 1997), at <http://www.uli.org/presroom/hudnut/web1.htm>, accessed 30 January 1999.

11. E. Blumenauer, "The View from Capitol Hill," *Brookings Review* 16, no. 3 (1998): 17.

12. A number of these initiatives are described in a set of articles on urban sprawl in *Brookings Review* 16, no. 3 (1998) and in "Strategies for Dealing with Sprawl," a section of the "Sprawl Resources Guide," at <http://www.plannersweb.com/spraw15.html>, accessed on 25 January 1999.

13. Hawaii actually was the first state to pass sweeping land-use legislation; its law, passed in 1961, put much of the power to control land use in the hands of the state. However, Hawaii's unique geographical situation makes it an unlikely model for other states.

14. That effort is reviewed in R. Gurwitt, "The State vs. Sprawl," *Governing* 12, no. 4 (1999): 18-23. Information is available at a state of Maryland website, <http://www.op.state.md.us/smartgrowth/html>, accessed on 25 January 1999.

15. These and other aspects are described at the Metro regional government website, <http://www.multnomah.lib.or.us/metro/index.html>, accessed on 18 January 1999.

16. W. Claiborne, "Cracks in Portland's 'Great Wall,'" *Washington Post*, 19 September 1997, A12.

17. R. Moe and C. Wilkie, *Changing Places: Rebuilding Community in the Age of Sprawl* (New York: Henry Holt and Co., 1997), 212-34; and A. Ehrenhalt, "The Great Wall of Portland," *Governing* 10, no. 8 (1997): 20-24.

18. "Without the boundary there is a continual tendency for urbanization to leapfrog outwards, seeking cheaper land prices, fewer rigorous regulations, and less community opposition." J. Barnett, *The Fractured Metropolis* (New York: HarperCollins, 1995), 66.

19. A. Downs, "How America's Cities Are Growing: The Big Picture," *Brookings Review* 16, no. 3 (1998): 8-12; D. Rusk, *Cities without Suburbs* (Washington, D.C.: Johns Hopkins University Press, 1993). The quote can be found in Moe and Wilkie, note 17 above, page 253.

20. P. Gordon and H. Richardson, "Urban Growth

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Boundaries Reconsidered" (paper presented at the conference Urban Growth: Addressing the Reality of Suburbia, Phoenix, Ariz., 3-4 June 1998).

21. One is reminded of the famous line from the movie Field of Dreams: "If you build it, they will come." Perhaps if you don't build it, they also will come.

22. See W. Claiborne, note 16 above; and T. Egan, "Seattle and Portland Struggle to Avert Another Paradise Lost," New York Times, 1 November 1997, A1.

23. M. Orfield, *Metropolitics: A Regional Agenda for Community and Stability* (Washington, D.C.: Brookings Institution Press, 1997); and "Conflict or Consensus," *Brookings Review* 16, no. 3 (1998): 31-35.

24. See R. Gurwitt, "The Quest for Common Ground," *Governing* 11, no. 9 (1998).

25. P. Myers, "Livability at the Ballot Box: State and Local Referenda on Parks, Conservation, and Smarter Growth, Election Day 1998" (discussion paper prepared for the Brookings Institution Center on Urban and Metropolitan Policy, 1998).

26. Moe and Wilkie, note 17 above, chapter 2.

27. The growing interest of foundations in the issue is described in S. Greene, "Stemming the Tide of Sprawl," *The Chronicle of Philanthropy* XI, no. 8 (1999): 1.

28. Many of these efforts are described the Brookings Review articles cited in note 12 above and in "What's Happening across the U.S." a section of the "Sprawl Resource Guide," at <http://www.plannersweb.com/sprawl5.html>, accessed on 25 January 1999.

29. See F. O'Hara, *The Cost of Sprawl* (Augusta, Maine: Maine State Planning Office, 1997).

30. In addition to sources cited elsewhere in this article, see D. Porter, *Managing Growth in America's Communities* (Washington, D.C.: Island Press, 1997); S. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985* (Cambridge, U.K.: Cambridge University Press, 1987), 71-98; R. Geddes, "Metropolis Unbound: The Sprawling American City and the Search for Alternatives" *American Prospect* 35, (1997): 40-46; the Sprawl Watch Clearinghouse at <http://www.sprawlwatch.org/>, accessed on 4 February 1999; the website of the Urban Land Institute (<http://www.uli.org>), accessed on 30 January 1999; the

website of the Metropolitan Initiative of the Brookings Institution (<http://www.brook.edu/es/urban/metro.htm>), accessed on 5 February 1999; and the website of the Smart Growth Network (<http://www.smartgrowth.org>), accessed on 2 April 1999.

31. The city of Chattanooga, Tennessee, which went from the country's "worst polluted" city in 1969 to designation by the U.S. Environmental Protection Agency in 1990 as the nation's best environmental turnaround story, has an apt slogan: "It takes all of us. . . . It takes forever."

32. The association's website is at <http://www.rpa.org>, accessed 4 March 1999.

33. The Sierra Club campaign, described at http://www.sierraclub.org/transportation/sprawl/sprawl_report/, and efforts by other environmental groups represent a significant shift in priorities. In 1993, author James Kunstler noted that "environmentalists, committed to the rescue of wild places, have failed to address the problem of human ecology in the places where we live and work." J. Kunstler, *The Geography of Nowhere* (New York: Simon & Schuster, 1993), 249.

34. A history of land planning in Montgomery County may be found at <http://www.clark.net/pub/mncppc/montgom/planning/70Years/70Ye>, accessed 5 March 1999. The county's use of transferable development rights is described in M. Mantell and S. Harper, *Creating Successful Communities: A Guidebook to Growth Management Strategies* (Washington, D.C.: Island Press, 1990), 25-27.

35. See P. Nivola, "Fit for Fat City: A Menu of 'Lite' European Policies to Improve Our Urban Form" (Washington, D.C.: Brookings Institution Policy Brief 44, 1999); Blumenauer, note 11 above, pages 16-17; and B. Katz, "Reviving Cities: Think Metropolitan" (Washington, D.C.: Brookings Institution Policy Brief 33, 1998).

RELATED ARTICLE: THE KENTLANDS

A widely recognized effort to create a liveable, less auto-dependent community within a sprawling metro area is the 352-acre Kentlands development in Gaithersburg, Maryland, about 15 miles north of Washington, D.C. Designed by the renowned architects Andres Duany and Elizabeth Plater-Zyberk, Kentlands is a leading example of "New Urbanism" a set of principles for community design that has been embraced by some U.S. architects and planners.

When it is completed, Kentlands will house about 5,000

Reining in urban sprawl.(includes related article on the Kentlands and on Maine)(Cover Story)

residents in 1,500 units. It differs from surrounding suburban developments in that it features a mix of townhouses, apartments, cottages, and larger single-family residences located on small lots on narrow streets that are bordered by trees and sidewalks. Many of the homes have front porches. Some of the sidewalks are made of brick. The development is divided into five neighborhoods, which include green spaces, lakes, and recreational, community, and civic buildings. Prices range from \$120,000 for a two-bedroom condominium to \$700,000 for a detached house. The architectural scheme is enforced by a set of codes that have the legal authority of zoning ordinances. A large shopping center is located at a corner of the development.

Embedded in the sprawl that surrounds Washington, Kentlands has been described as a "Faberge egg in a county landfill."⁽¹⁾ Both residents and nonresidents enjoy walking and jogging in its neighborhoods. Property values reflect the appeal of Kentlands as a place to live.

From a larger perspective, Kentlands and other examples of New Urbanism have drawn mixed reactions. Some have praised Kentlands and hailed New Urbanism as an approach that can help to bring the suburbs "home from nowhere" by building coherent neighborhoods and towns.⁽²⁾ Others have condemned Kentlands as a "repackaged subdivision" that provides the illusion but not the reality of urban living and perpetuates reliance on the automobile; these critiques have dismissed New Urbanism as "the New Suburbanism."

Kentlands offers a welcome alternative to typical suburban life. But Kentlands will house just 5,000 of the 4 million people who live in Washington's sprawling suburbs, a population that is likely to grow by a million over the next quarter-century. Most Kentlands residents must drive to get to the places where they work and many of the places where they shop. If Kentlands and other manifestations of the New Urbanism are to have a significant impact on urban sprawl, Kentlands' positive characteristics must be replicated in huge numbers of other communities, and the places where those communities are located must take steps to address the areawide problems that are described elsewhere in this article.

1 J. Kunstler. *Home from Nowhere* (New York: Simon & Schuster. 1996). 189.

2 *Ibid.*, page 189-92.

RELATED ARTICLE: EVEN IN MAINE?

by Ted Koffman

Like pornography, sprawl might be difficult to define, but we know it when we see it. And we see it in every region of the country, from Portland, Oregon to Portland, Maine.

After the Civil War, the promise of free prime mid-western lands and the higher wages paid to New England mill workers lured Maine farmers from their homesteads. Nearly 75 percent of Maine's original farmlands have grown back to woods leaving the state with more forested land today (89 percent) than at the turn of the 19th century. A natural-resource-based economy still generates 30 percent of Maine's gross state product. Farming, forestry, fishing, outdoor recreation, and tourism are essential to sustaining rural livelihoods. Although Maine's population has slowly climbed to 1.25 million, it has barely recovered from post-Civil War declines. Some economists are concerned that the annual 1 percent growth rate and the aging population cannot supply the amount of workers needed to support economic growth. These demographics could even result in the state losing one of its two seats in Congress in the early part of the next century.

Sprawl in Maine sounds like an oxymoron. Yet, in the 20 years between 1970 and 1990, as much farm and forest land was consumed by development, as in the entire prior history of the state. Maine's population have been moving out and away from the 69 service-center communities, suburbanizing and gentrifying the once rural landscapes. Cheaper land, lower taxes, privacy, quiet, and closeness to nature are major attractions of the countryside. The fastest growing towns have been the "new suburbs" 10 to 25 miles away from metropolitan areas. These high-growth communities account for virtually all of the areas experiencing population growth. In reverse, since 1960, the greater Portland metropolitan geographic area, Maine's largest, has increased 550 percent while the population increased 80 percent and density dropped from two persons per acre to half a person per acre.

Ironically and unintentionally, some state policies encourage sprawl. For example, highway construction policies favor the historically lower income rural areas and formulas for allocating funds for new schools are driven by population growth. In response to population shifts to rural areas, new elementary and secondary schools are being built with state funds. In the 20 years from 1975 to 1995, Maine spent \$350 million in new school construction to accommodate population shifts from urban to the newly suburban areas. Meanwhile the state's total student population actually dropped by 27,000 students, and serviceable urban schools closed for lack of students. As a consequence, walking to school has become the exception for most students, who now depend on an expanding fleet of school buses. The budget for the required bus fleet has

Reining in urban sprawl.(includes related article on the Kentlands and on Maine)(Cover Story)

grown from \$8.7 million to \$54 million in three decades. The number of housing units per mile of roadway has declined from 43 to 19 units per mile, causing more buses to travel for more hours over more roads.

Still, some residents were surprised when the 1998 State of the Environment report concluded that a sprawling pattern of residential and commercial development is progressively impacting the quality of the state's air, water, and land; eroding the rural character and quality of life; and threatening the viability of its ecosystems. Concurrent studies by the Maine State Planning Office document substantial and mounting fiscal and social costs of sprawl, in a state that is ranked 36th in per capita income.

This trend is particularly pronounced in southern Maine and along the coast. An aerial view taken from any southern or central perspective illustrates what is virtually impossible to see from the ground: there are patterns of residential, commercial, transportation, and municipal developments that have been etched into the natural landscape. For example, loss of farms and the fragmentation of habitat take a noticeable toll; recreational access to waterfront and open space is diminishing; commutes are longer and traffic congestion has increased; scenic views are threatened by development; and the economics of traditional downtown shopping areas are challenged by strip malls. As the service-center populations drop, urban churches, schools, and neighborhoods decline. The population left behind is comprised by larger numbers of the elderly, lower-income residents, and others dependent on public assistance.

Residents who sought lower taxes and living costs in rural areas are discovering that municipal budgets must expand to meet the needs and expectations of the wave of new inhabitants. At first, the impact on property taxes is not noticeable as towns stretch their resources at the margin to support expanding services. But eventually growth exceeds the capacity of town services and infrastructure. Towns are forced by necessity to add more snow plows, police cruisers, fire trucks, personnel, sewer systems, and water supplies. The cost of maintaining and operating large new schools, constructed with state tax dollars, will eventually strain the local tax base. Consequently, taxes in the new suburbs are increasing at two times the rate of the urban centers.

Meanwhile, environmental degradation continues: fragments of forest lands and riparian habitat become too small to sustain former wildlife species; private and public drinking water supplies and lakes are more at risk from fuel spills, failing septic systems, and nonpoint source pollution; and open spaces are more frequently posted

with no trespassing signs. Many former urban or suburban residents are not as sympathetic to the means and methods of rural economic activities. Livestock manure odors, flies, and the noise of farm or forestry operations in the early morning hours irritate some new residents and spawn nuisance suits.

There is a saying in Maine that "a rising tide lifts all boats equally" (large and small, luxury yachts and fishing scows alike). Likewise, sprawl is an equal opportunity degrader of the urban and rural communities and the environments they depend on. Increasingly, community leaders and citizens are recognizing that the fiscal, environmental, and quality of life costs of sprawl are too high and that new approaches to designing and planning development are overdue.

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