

# THE SPRAWLING OF AMERICA: IN DEFENSE OF THE DYNAMIC CITY

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## Executive Summary

Urban sprawl has sparked a national debate over land-use policy. At least 19 states have established either state growth-management laws or task forces to protect farmland and open space. Dozens of cities and counties across the nation have adopted urban growth boundaries in order to contain development in existing areas and prevent the spread of suburbanization to outlying and rural areas.

Despite widespread concern over sprawl, a clear definition remains illusive in public debate. The debate over sprawl is driven primarily by general concerns that low-density residential development threatens farmland and open space, increases public service costs, encourages the people and wealth to leave central cities, and degrades the environment.

Evidence on suburbanization and low-density development suggests suburbanization does not significantly threaten the quality of life for most people, and land development can be managed more effectively through real-estate markets than comprehensive land-use planning.

An analysis of land-use trends at the national and state levels reveals:

1. *Suburbanization and sprawl are local issues.* Less than 5 percent of the nation's land is developed, and three-quarters of the nation's population lives on 3.5 percent of its land area. Over three-quarters of the states have more than 90 percent of their land in rural uses, including forests, cropland, pasture, wildlife reserves, and parks. Acreage in protected wildlife areas and rural parks exceed urbanized areas by 50 percent.
2. *Urban development does not threaten the nation's food supply.* About one-quarter of the farmland loss since 1945 is attributable to urbanization. More importantly, predictions of future farmland loss based on past trends are misleading because farmland loss has moderated significantly, falling from 6.2 percent per decade in the 1960s to 2.7 percent per decade in the 1990s.
3. *Cost-of-development studies exaggerate the effects of suburbanization on local-government costs.* Most costs are recovered through on-site improvements made by developers. Local governments often choose not to recover the full costs of development, preferring to subsidize development through general revenues. Most studies also fail to recognize the interconnected nature of land development, ignore

cheaper and alternative ways to provide services (e.g., through the private sector), and use a static snapshot of communities.

4. *Declining cities suffer from many “push” factors.* These push factors—low-quality public education, high crime, high tax rates, regulatory barriers, and fewer housing opportunities—must be addressed before they can compete for middle-income families and households. Suburbanization represents household choices based on these factors.
5. *Air quality deteriorates as residential densities increase.* The metropolitan areas with the worst smog ratings from the U.S. Environmental Protection Agency have the highest population densities.
6. *Open space is increasingly protected through the private sector.* Real-estate markets are responding to household preferences for open space through cluster housing. Private land trusts and agreements among property owners are also preserving open space in fast-growing areas.

Rather than adopt comprehensive land-use planning—which circumvents real-estate markets—or urban growth boundaries that put some land off limits to development, this study recommends an alternative, market-oriented approach grounded in the following principles:

1. *Economic Policy Neutrality* where state and local policymakers avoid giving preferential treatment to particular industries, including the agricultural industry.
2. *Price On-Site Public Services at their Full Costs.* Cities and local governments should price on-site infrastructure costs so that all costs—operating, capital and debt—are included in the price for the service while also ensuring efficient design and service delivery options.
3. *Reform Zoning to Accommodate Market Trends.* Local governments should adopt flexible-zoning laws that allow for mixed-use and higher-density land development based on market trends. Performance zoning should be explored by local governments as an alternative to current zoning practices that further politicize the land-development process.
4. *Use Flexible, Voluntary Programs to Protect Open Space.* Public policy should facilitate the voluntary transfer and purchase of development rights on farmland and open space to private land trusts and other property owners. Tax-credit programs that reduce the tax burden on land ownership may also be useful ways to encourage property owners to preserve open space.
5. *Strengthen Private Property Rights.* Private property rights should be protected, including the right to use and sell property as the owner sees fit. Restrictions on land use through countywide or regional planning run the risk of reducing the value of property without compensation for the loss.
6. *Adopt Nuisance-based Standards for Land-use Regulation.* Local governments should ground their land-use regulations in the common law concept of nuisance. Those objecting to land uses should be required to prove a tangible harm and receive compensation based on the severity of the harm or be assured a harm will be mitigated or eliminated..
7. *Facilitate Change and Community Evolution.* Local land-use regulations should recognize the open-ended and uncertain nature of community development. Local land-use regulations should allow communities to evolve with their changing character and values, and not become instruments of preservation.

The dangers of giving into antigrowth sentiment are significant since, by 2010, the U.S. economy is expected to grow by 11.5 percent, population by 11 percent, and employment by 15 percent. Current residents and citizens will expect their quality of life to increase with their incomes. These trends require accommodating rather than restricting growth.

## Part 1

# Introduction

*“Sprawl is a plague on the land.”<sup>1</sup>*

*“Urban sprawl is like a cancer that doesn’t respect city and county boundaries.”<sup>2</sup>*

*“People are looking at other ways to tame the monster called suburban sprawl.”<sup>3</sup>*

*“Sprawl is having a devastating effect on our quality of life.”<sup>4</sup>*

*“Sprawl is a disease eating away at the heart of America.”<sup>5</sup>*

These are just a few of the reactions to a phenomenon occurring in suburban and rural areas across the nation. Once considered a benign outgrowth of higher incomes and the search for the American Dream—homeownership, a private lot, and a car—suburbanization, or sprawl, has become a lightning rod for government activism. The media and other pundits on urban development use the term “sprawl” to conjure up disorder, chaos, and irrational decision making.

In fact, some suggest that urbanization’s negative impact is beyond debate. “Evidence is mounting,” notes one architect and planning commissioner, “that the sprawl patterns, with their innate geometric and density inefficiencies, have become unaffordable.”<sup>6</sup> Growth management has surged into the mainstream of public debate. The question now, for some, is how containing sprawl can be accomplished.

This report challenges the emerging conventional wisdom on urban sprawl, suburbanization, and the need to regulate land development through top-down planning. Through an empirical assessment of land-use trends at the national, state, and local levels, we put the nation’s march toward suburbanization in a broader context. A dynamic view of cities and land development is crucial for understanding urban development and suburbanization. A dynamic view of cities and suburbanization requires a different role for public policy than is currently evident in the mainstream debate over urban sprawl, its consequences, how to preserve open spaces, and ensure that diverse urban communities thrive. While suburbanization may create nuisances, such as increased traffic congestion, noise, or loss of open space in formerly rural areas, these issues can be addressed directly through transportation policy, private open-space initiatives, or other policies directed at specific problems rather than through more general attempts to limit urbanization.

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<sup>1</sup> Former Michigan Governor Bill Milliken cited in George Weeks, “Urban Sprawl Threatens Michigan’s Farmlands,” *Detroit News*, December 16, 1997.

<sup>2</sup> Editorial, “Where’s the Governor?” *Salt Lake Tribune*, September 18, 1997, p. AA1.

<sup>3</sup> Chris Golembiewski, “Space Worries Have Communities Working to Plan Orderly Growth,” *Lansing State Journal*, July 7, 1997.

<sup>4</sup> Richard Moe, President, National Trust for Historic Preservation, address at Brookings Institution, Washington, D.C., March 22, 1995.

<sup>5</sup> Gov. Parris N. Glendening, “A New Smart Growth Culture for Maryland,” statement introducing Maryland’s Smart Growth initiatives on Maryland state web site: <http://www.op.state.md.us/smartgrowth/speech2.html>

<sup>6</sup> Mike Dobbins and Peggy Dobbins, “Sprawl Things Considered: Controlling Growth,” *American City and County* September 1997, p. 19.

## Part 2

# Suburbanization and Public Policy

One indicator of an issue's importance is the degree to which state and local governments have taken formal action to address it. By this standard, land-use policy has emerged as a national issue.

More and more states are addressing urban sprawl through legislation and task forces. Just three states—Hawaii, Vermont and Oregon—had statewide growth-management plans in place in the 1970s (Table 1). By the 1980s, six more states had joined the list by either adopting statewide growth-management plans or initiating task forces to study farmland loss. In the 1990s, ten more states began addressing sprawl issues formally although not always through statewide growth-management laws.

Half the states in the 1990s established task forces which most often recommended some form of “sprawl containment” to protect farmland and the local agricultural industry. California’s Central Valley, which includes Sacramento, convened a task force to “recommend policies to conserve and protect resources vital to the long-term economic health and productivity of agriculture in the Central Valley.” The task force’s report, released in July 1998, called for the creation of mandatory “buffers” between urban and non-urban areas to protect agricultural land, new subsidies for research and agricultural production, and higher taxes to discourage the conversion of agricultural land.<sup>7</sup> Indiana and Iowa initiated their farmland-preservation task forces in 1998. Thus, by 1998, 38 percent of the nation’s states had formally addressed land-use and open-space issues through task forces or growth-management plans.<sup>8</sup>

This list excludes local cities and regions that have initiated growth-management policies and actions in the absence of statewide initiatives. In Lancaster County, Pennsylvania, urban growth boundaries—prohibitions on land development beyond politically established lines—have been adopted in 19 cities to prevent the development of farmland.<sup>9</sup> More than a dozen cities in the San Francisco Bay area have adopted growth boundaries since 1996. Nationwide, growth boundaries exist in more than 50 cities and counties.

The trend toward more government regulation of land development is likely to increase as debates over suburbanization continue to shape policy discussions in states as wide-ranging as New Jersey, Utah, Texas, Arizona, Nevada, and even Montana.

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<sup>7</sup> *Report of the Agricultural Task Force for Resource Conservation and Economic Growth in the Central Valley*, Executive Summary, July 1998.

<sup>8</sup> This tally does not include states such as South Carolina which are mandating comprehensive planning and zoning at the local levels.

<sup>9</sup> *Report of the Pennsylvania 21<sup>st</sup> Century Environment Commission*, Harrisburg, Pennsylvania, September 1998, p. 21.

1970s	1980s	1990s
Hawaii Oregon Vermont	Florida Georgia Kentucky* Maine New Jersey Rhode Island	Colorado* Delaware Indiana* Iowa* Maryland Michigan* Ohio* Pennsylvania Tennessee Washington

*Note:* \* Indicates farmland and open-space preservation initiative.

*Source:* Compiled by the author from personal interviews, reviews of state laws, and information from the American Planning Association, the American Farmland Trust, and Judith Eleanor Innes, "Implementing State Growth Management in the United States," pp. 18-43, in *Growth Management: The Planning Challenge of the 1990s*, Jay M. Stein, ed. (Newbury Park, Calif.: Sage Publications, 1993).

## A. Suburbanization and Real-estate Markets

Another side to this issue does not receive much attention in the media or public debate. While critics have focused on the visible effects of suburbanization—more houses and people, loss of farmland—urbanization represents the creation of new communities and the transformation of old ones. This transformation of community often translates into political tension and conflicts: the farming community gives way to the rural-residential community; the rural-residential community gives way to a full-fledged suburb; the suburb may even give way to a larger, economically and socially diverse city. These conflicts often overshadow suburbanization's benefits.

Development results from the entrepreneurial use and reuse of basic economic resources—land, labor, and capital—to enhance the quality of life and standard of living of people. This process, even when it manifests itself in low-density housing, is not new. People have been suburbanizing at least since the 13<sup>th</sup> century when they fled disease and unsanitary conditions in the city.<sup>10</sup> Suburbanization was, in a sense, the product of the first environmental movement: by moving out of large central cities, people moved to healthier living environments. In the United States, this decentralization manifested itself as low-density residential, commercial, and industrial development.

What sets the modern era of suburbanization apart from the historical trend is how quickly this process has occurred. The automobile, cheap gasoline, and the interstate highway system ushered in an unprecedented period of personal mobility. Transportation costs plummeted, making it easier for people to live further away from an urban core. When these factors were combined with rising family incomes and cheap mortgage lending (another subsidy),<sup>11</sup> the demand for suburban housing increased dramatically. The average working family could now afford, like managers and business owners before them, larger homes on separate lots further away from their jobs. This process also allowed people to move to smaller communities where government was closer to home. With the decentralization of jobs and the growth of suburban cities, an era of truly competitive local government was born.<sup>12</sup>

<sup>10</sup> Lewis Mumford, *The City in History: Its Origins, Its Transformations, and Its Prospects* (New York: Harcourt, Brace & World Inc., 1961), pp. 487-93.

<sup>11</sup> The impact of this subsidy on suburbanization *per se* is unclear. The subsidy encourages homeownership, irrespective of location. Homeowners in urban areas received the same benefits as homeowners in suburban areas. Combined with rising incomes, however, this subsidy may have encouraged families to purchase newer and larger homes which were more widely available in suburban housing markets.

<sup>12</sup> Another term for competitive local government is metropolitan fragmentation. A substantial research literature has emerged on the consequences of local government fragmentation. Some urban policy analysts, particularly those from the economic and public-choice schools, generally consider this competition beneficial. Other urban policy analysts view metropolitan government fragmentation negatively. For overviews of the debate over local government

## B. Public Policy and Urban Sprawl

Despite the trend toward more control over land development, the appropriate policy response is still largely a matter of public debate. The record of other states shows a multitude of options. Oregon and Florida opted for top-down, regional planning where population densities and development patterns are supposedly guided by state goals or land-use regulation. Georgia implemented a statewide system of growth management that focuses efforts and decisionmaking at the local level, making state goals subordinate to local control. New Jersey adopted a system for directing new development into growth corridors and prioritizing infrastructure investment based on a hierarchy of urban “centers” in 1992. Maryland has revised its growth-management law to enact a “Smart Growth” plan that favors an incentive-based approach for guiding land development through state infrastructure spending guidelines and other programs.

Which direction is most suitable for local and state governments? We address this question by assessing land-use trends in the United States, evaluating their consequences for residents and citizens, and developing policy recommendations for state and local public officials. Popular wisdom attributes to “sprawl,” or low-density development, problems that often stem from other factors. Public policy, however, should be grounded in tangible impacts, not misperceptions and misunderstandings about the nature of land development.

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fragmentation and competition, see Sam Staley, *Bigger is Not Better: The Virtues of Local Government Fragmentation*, Cato Institute Policy Analysis No. 162, January 1992; David Rusk, *Cities Without Suburbs* (Baltimore, MD.: Johns Hopkins University Press, 1993).

## Part 3

# The Many Faces of Urban Sprawl

**W**hat is urban sprawl? The answer to this question will determine what kinds of issues should be addressed and what types of recommendations should be followed. Yet a clear definition has not emerged as part of the urban sprawl debate. Urban planners and other academic researchers have attempted to define urban sprawl, but few of the definitions have gained general acceptance.

## A. Defining Sprawl

Planner Reid Ewing, one of the architects of Florida's statewide growth-management plan, believes that sprawl can be characterized by four factors:<sup>13</sup>

- Low-density development, usually consisting of single-family homes on large lots;
- Strip commercial development;
- Scattered development, where commercial, residential, and retail developments are not integrated or close together; and
- Leapfrog development where drivers view long stretches of vacant land between developments.

This definition has received some popular support. In Arizona, Citizens for Growth Management attempted to get an initiative on the statewide ballot in 1998 that adopted this definition:

*Urban sprawl means urban development that occurs in a rural or fringe area, and that typically manifests itself in one or more of the following patterns: A) Leapfrog development, B) Ribbon or strip development, C) Development separated from continuous urban development by vacant, low density, or rural land, and D) Development that invades lands important to environmental and natural resource protection.*<sup>14</sup>

Yet even this is an incomplete list and an unsatisfactory characterization of the development process. For example, objections to scattered or leapfrog development are often rooted in static concepts of urban development. Scattered sites are eventually connected through infill—usually commercial and higher-density residential development (see box).<sup>15</sup>

<sup>13</sup> Reid Ewing, "Is Los Angeles-Style Sprawl Desirable?" *Journal of the American Planning Association*, vol. 63, no. 1 (Winter 1997), pp. 108–109.

<sup>14</sup> Proposed changes to Chapter 12 of the Arizona Revised Statutes, Title 11, 11-1714, Part 14 by Citizens for Growth Management.

<sup>15</sup> For an excellent overview of this point, see Randall G. Holcombe, *Florida's Growth Management Experiment: An Analysis*, James Madison Institute, September 1995, pp. 4–7.

### “Leap Frog” Development May be Efficient in a Dynamic Society

Bellbrook, Ohio, a community of 7,800 near Dayton, Ohio, offers a classic example of the modern suburb. Its recent history also demonstrates the importance of understanding cities in a dynamic context.

The town began as a farming community with a few commercial businesses in its downtown core about 15 miles from a city of over 250,000 people. Over a period of four decades, people and businesses decentralized, and the land between the city and the town developed into an integrated economic and social region. Bellbrook experienced its first large-scale subdivision development in the late 1950s and early 1960s. The houses were small by contemporary standards: three-bedroom homes ranging from 1,200 to 1,800 square feet without basements. The homes were on half-acre lots and purchased, for the most part, by well-paid blue-collar workers. Most workers were traveling 45 minutes into the city to their jobs, usually along two-lane roads passing miles of cornfields and woods.

As the suburbs closer to Dayton developed, and family incomes increased so they could afford more space in smaller communities, people moved out of the big city. By 1973, Bellbrook became a city in part to qualify for federal grants to finance a city water and sewer system (an important subsidy for new development). The city continued to grow throughout the 1970s and 1980s.

In the mid-1980s, a beltway around Dayton was completed with an interchange just two miles from downtown Bellbrook. By this time, the southern suburbs were almost completely developed. Access to a four-lane limited-access highway, combined with the population growth of Bellbrook and other nearby suburbs, made land along major streets and roads viable for commercial uses. By the late 1990s, retail and commercial development lined major roads connecting downtown Bellbrook with the interstate highway and the city of Dayton. Bellbrook had evolved from a small rural community to an upscale white-collar community anchored around hundreds of relatively small “starter” homes.

The evolution of Bellbrook is typical of the growth of new communities and exposes the basic problem with arguments criticizing “leap frog” or “scattered site” development as unordered or haphazard. That two communities are economically and socially disconnected at one point in time does not mean that they will always be. In a dynamic, evolutionary society, some communities eventually become connected and socially integrated. This process is not disorderly, but the resulting urbanization may present visual and lifestyle changes that some people dislike.

This pattern is often unpredictable. Bellbrook’s growth depended on a myriad of other factors, including general development patterns favorable toward areas south of the city of Dayton, the construction of an interstate highway interchange, and its proximity to other growing suburbs. Its growth as a largely bedroom community was a result of a dynamic real-estate market that evolved as the region transformed itself from rural to suburban in character.

Concerns over sprawl, writes Ewing, center on the impacts of land uses, not the specific characteristics of urban development. “It is the *impacts* of development that render development patterns undesirable,” he says, “not the patterns themselves.”<sup>16</sup> So, the problem with suburbanization for many planners is not the mere existence of single-family houses on large lots. Rather, infrastructure costs, congestion, “imbalanced” economic development, and environmental impacts motivate concerns about continuous low-density development.

<sup>16</sup> Ewing, “Is Los Angeles-Style Sprawl Desirable?” p. 109. Some planners believe the general pattern of low-density suburban development should be avoided. Planners favoring compact development and neotraditional planning, for example, argue for higher densities and mixed uses as general policy.



Definitions of sprawl in the popular press and public debates have tended to take on more general meanings than those found in academic journals and research monographs. Many definitions are so general and value laden that their usefulness for policy discussions are limited. For example, the Pennsylvania 21<sup>st</sup> Century Environment Commission defined sprawl as “a spreading, low-density, automobile dependent development pattern of housing, shopping centers, and business parks that wastes land needlessly.”<sup>17</sup> The report does not discuss how “needless” or “wasteful” land development is identified. In other cases, definitions serve narrowly focused interests or concerns. When asked to define urban sprawl, a senior official in a state farm bureau in the Midwest said “fragmentation of farmland.”<sup>18</sup> Urban economist John F. McDonald<sup>19</sup> captures the spirit of most popular definitions of urban sprawl when he characterizes it as:

- Low-density development that is dispersed and uses a lot of land;
- Geographic separation of essential places such as work, homes, schools, and shopping; and
- Almost complete dependence on automobiles for travel.

### **Local Priorities Define how Suburbanization Policies are Targeted**

Policy responses to suburbanization have generally tracked with local concerns about low-density development, segregation of uses, and automobile dependence. In areas where open space or farmland preservation have a higher priority, public policy has focused on “compact” development strategies. In Michigan, Ohio, and Colorado, for example, farmland preservation task forces have recommended programs to purchase and preserve farmland as open space while alternative transit issues have received less attention.

In areas where urban revitalization is paramount, public policies have included incentives to live close to the work place. Maryland combined a “brownfield program” to encourage the redevelopment of inner-city land with financial incentives for people to move closer to their work. (Thirty-three states have adopted programs to encourage the redevelopment of inner-city land.)<sup>20</sup>

In some states, congestion is a significant issue, prompting local policymakers to consider limits on growth to reduce automobile use. Not surprisingly, rail transit is promoted as an alternative to automobile use in highly congested parts of the nation, including Los Angeles, the San Francisco Bay area, and big cities such as Philadelphia.

Some states and localities, of course, give equal weight to each of these issues. The most-comprehensive example of this may be Portland, Oregon, where the regional planning authority, Metro, is attempting to redesign the metropolitan area for higher densities, mixed uses, and rail transit while preserving open space and farmland at the city perimeters.

Many people think sprawl is synonymous with suburbanization: the process of moving out of congested central cities into outlying areas.<sup>21</sup> Popular criticism of sprawl is often a reaction to the recent

<sup>17</sup> This definition is less pejorative than the one it uses in its executive summary: “Sprawl is the reckless, almost random growth of housing developments, strip malls, business parks, and the roads connecting them, and the numbers of vehicles using those roads.” *Report of the Pennsylvania 21<sup>st</sup> Century Environment Commission*, p. 2, 91.

<sup>18</sup> Interview with author, October 28, 1998.

<sup>19</sup> John F. McDonald, *Fundamentals of Urban Economics* (Upper Saddle River, New Jersey: Prentice-Hall, 1997), p. 11.

<sup>20</sup> See Alexander Volokh, Lynn Scarlett and Scott Bush, *Race to the Top: The Innovative Face of State Environmental Management*, Reason Public Policy Institute Policy Study No. 239, February 1998, pp. 20–32.

<sup>21</sup> See the brief discussion in John M. Levy, *Contemporary Urban Planning*, 2<sup>nd</sup> Ed. (Englewood Cliffs, N.J.: Prentice Hall, 1991), pp. 14-15.

suburbanization and decentralization of people in metropolitan areas. People are leaving congested, dense cities for less-dense suburban locations, making suburban locations more crowded and congested. For this reason, sprawl is defined in this study as the continued suburbanization of a region's population. Another way of characterizing this process is thinking of sprawl as the "transitional period between rural and urban land use."<sup>22</sup>

Sprawl ends up as an "I know it when I see it" problem. This is problematic from the perspective of public policy. Without an understanding of what sprawl is or whether it is even "bad" *per se*, a clear policy response cannot be developed.

Given its vague and value-laden image in the public debate, sprawl (equated with suburbanization) is often mischaracterized as chaotic and disorderly. Richard Moe, president of the American Farmland Trust, a historic preservation interest group, has persistently criticized suburbanization as a seemingly random, unordered process that can only be avoided through comprehensive planning. Moe refers to low-density suburbanization as a product of the "random collision of economic forces"<sup>23</sup> and calls for "rational" policies—comprehensive regional planning—to replace it. "Communities," he recently told a crowd in Fresno, California, "should be shaped by choice, not chance."<sup>24</sup> On the East Coast, Gov. Christine Todd Whitman said in 1996 that without New Jersey's state plan to control development "we surrender our future to little more than the random will of those who stand to reap short-term benefits at the expense of New Jersey's long-term well-being."<sup>25</sup> Others simply characterize sprawl as irrational. Maryland Gov. Parris Glendening recently admonished his citizens to change their ways:

*Maryland's efforts to battle the sprawl monster date back nearly one-quarter of a century. The four governors before me—starting as far back as 24 years ago—also fought to tame suburban sprawl. . . . We can choose from among several different paths. The status quo, which Americans everywhere will tell you clearly is not working. Or, our new path, the path that will lead to sensible, smart growth and a healthy environment.<sup>26</sup>*

But land development, even low-density suburban development, is not haphazard, random, careless, or even irregular. Real-estate markets coordinate thousands of consumer and producer decisions each day and signal important information about costs and revenues through real estate prices. The logic of the market works this way: property owners, such as farmers, sell their land to developers. Developers buy the land because they believe it has value for alternative uses, such as homes, office buildings, or shopping malls. Developers improve the property or sell it to businesses and families who are willing to pay the price and develop the land themselves. This is a very rational process and is implicit in every economic market, from selling food in grocery stores to selling automobiles.

Indeed, markets create order out of seemingly random decisions every day by matching consumer preferences with products and services supplied by entrepreneurs and producers. These decisions are

<sup>22</sup> The author gratefully acknowledges Dr. William T. Bogart as the source for this definition. The author, of course, is solely responsible for its application in this study.

<sup>23</sup> Richard Moe, "Growing Wiser: Finding Alternatives to Sprawl," *Government Finance Review*, vol. 11, no. 6 (December 1995).

<sup>24</sup> Richard Moe, President National Trust for Historic Preservation, speech delivered at the San Joaquin Valley Town Hall, Fresno, California, November 20, 1996, quoted in *Land Recycling and the Creation of Sustainable Communities*, California Center for Land Recycling Policy Paper No. 1, 1998, p. 2.

<sup>25</sup> Statement to New Jersey State Planning Commission, February 28, 1996.

<sup>26</sup> Gov. Parris N. Glendening, "A New Smart Growth Culture for Maryland," <http://www.op.state.md.us/smartgrowth/speech2.html>.

coordinated through the price system, and substantial empirical evidence supports the role of markets in this function.<sup>27</sup> “Rather than being determined by a process which indiscriminately consumes agricultural land,” note authors of an early assessment of land development trends, “urban sizes are the result of an orderly market equilibrium where competing claims to the land are appropriately balanced.”<sup>28</sup> Thus markets transform land from one use to another using the price system to guide buyers and sellers. Of course, not everyone likes the outcomes generated through these decentralized, individual transactions.

In market economies, the value people place on different goods, services, and resources are reflected in prices. These values are a product of the choices people and families make about what goods and services they want to buy given their income. This is a dynamic process. Decisions about what land to buy, what land to sell, and at what price are based on expectations. No one guarantees that these expectations will be met. Their reward for correctly assessing consumer needs will be a profit, provided they produce the goods and services efficiently. Entrepreneurs fail if they incorrectly assess the state of the market. Land developers face these constraints and potential rewards everyday just like other businesses.

Land markets, of course, do not work in a complete free market. Public policies distort incentives in prices in many different ways. Tax incentive and abatement programs often encourage businesses to locate in some cities rather than others. Home mortgage deductions encourage people to invest in new housing rather than renovate existing homes. Minimum lot-size zoning mandates densities lower than what markets would often provide on their own. Local governments often price the new public services and infrastructure well below the actual costs of providing them. In addition, land development sometimes creates nuisances and other unintended impacts on neighbors, also called “externalities,” such as congestion, environmental degradation, or simple “ugliness.” Nevertheless, even with these caveats, real-estate markets have generally matched people with communities and housing fairly well. More importantly, local planning systems can be modified to address specific concerns over nuisances and other neighborhood harms without circumventing the real-estate market.

## B. Land Use in the United States

Nationally, 4.8 percent of the total land area is developed, inclusive of federally owned lands.<sup>29</sup> The median—the mid-point when all states are ranked by their degree of development—is just 5.2 percent. The most developed states are in New England (Table 2). Connecticut, New Jersey, Massachusetts, and Rhode Island have developed about 25 percent or more of their land. New Jersey is the most urbanized state (based on land-use), with more than 30 percent of its land area developed. Thus, despite centuries of urbanization, no state in the United States has more than one-third its land developed for urban uses. More than three-

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<sup>27</sup> For a comprehensive analysis of how markets “order” urban and regional economies, see J. Vernon Henderson, *Urban Development: Theory, Fact and Illusion* (New York: Oxford University Press, 1988). In the land market, land and building prices coordinate these decisions and provide developers and consumers with information about the relative costs of supplying homes, office buildings, and factories. Take the following example from a real case. A developer proposed building a 26-unit housing development with average home prices in the range of \$300,000 to \$500,000. After two years, only ten lots had been sold. The houses that had been built were on the market for unexpectedly (and unprofitably) long periods. So, the developer changed the design of the development. The new lots and homes will be targeted toward empty nesters. The market sent a message to the developer about what consumers wanted and were willing to pay for. He used this information to redesign his project to meet what consumers wanted. The land market imposed “order” on the desires of the developer—and, in this case, the local planning board—through the profit and loss system of the land market. For technical and nontechnical overviews of how land markets function, see any standard urban economics textbook such as William T. Bogart, *The Economics of Cities and Suburbs*, (Upper Saddle River, New Jersey: Prentice-Hall, 1998), John F. McDonald, *Fundamentals of Urban Economics*, or John P. Blair, *Local Economic Development* (Beverly Hills, California: Sage Publications, 1995).

<sup>28</sup> Jan K. Brueckner and David A. Fansler, “The Economics of Urban Sprawl: Theory and Evidence on the Spatial Sizes of Cities,” *Review of Economics and Statistics*, vol. 65 (August 1983), pp. 479-82.

<sup>29</sup> *Summary Report: 1992 National Resources Inventory*, U.S. Department of Agriculture, Soil Conservation Service. Cited in *American Almanac 1996-1997: Statistical Abstract of the United States* (Austin, TX: Hoover’s Inc., 1996), Table 365. These are the most recent data available.

quarters have more than 90 percent of their land in rural areas (see Figure 1). The national data confirm that the vast majority of states are largely rural in character.

What is even more striking is the degree to which state populations have urbanized. Even though 68 percent of New Jersey's land is undeveloped, almost nine out of ten people live in urban areas (Table 2). In Missouri, a state with 95 percent of its land undeveloped, almost 70 percent of its population lives in an urbanized area. Of the ten most urbanized states, all except North Carolina and Pennsylvania have 70 percent or more of their population living in urban areas. Of the ten least urbanized states—those with 97 percent or more of their land in rural areas—all have more than half their populations living in urbanized areas. Nevada, which is 99 percent rural, houses 88.3 percent of its population in urbanized areas.

### Defining Urban Uses

The U.S. Bureau of the Census considers an area "urban" if it meets certain density and population criteria. For example, an urbanized area or "place" must have a population of at least 2,500 people and adjacent areas must have a population density of 1,000 people per square mile,<sup>30</sup> or 1.56 people per acre. Thus, a family of four occupying a 2.5-acre parcel of land could be included in an urbanized area while a family of four on a five-acre parcel of land might not (depending on the proximity of other households and land uses).

An alternative land-use classification system is used by the U.S. Department of Agriculture (USDA) and National Agricultural Statistics Service (NAAS). NAAS classifies land based on whether it is used as: 1) pasture, range or grasslands, 2) cropland, 3) forest, or 4) special uses and "other." Special uses and other represent catch-all classifications for any land not used as forest, pasture, grassland, or cropland. Special uses consist of roads, highways, airports, federal and state parks, wilderness areas, urban areas, wildlife refuges, national defense, and industrial uses. Other uses consist of industrial and commercial sites in rural areas, cemeteries, golf courses, mining areas, marshes, swamps, deserts, and other unclassified land. In 1992, these two residual categories of land use represented 15.1 percent of the land area in the lower 48 states (Alaska and Hawaii excluded), up from 14 percent in 1982 and 12.6 percent in 1974.<sup>31</sup>

Neither of these definitions classify land by its suitability for development. Land may not be developable for several reasons, including soil composition, elevation, slope, existence of open water, or because it is an environmentally sensitive areas. Some of these factors are economic more than topographical limits: development occurs on steep slopes in mountainous areas (e.g., Pittsburgh or coastal regions) and world cities such as Hong Kong have used in-fill to create developable area. Still, a measure of land economically available would be a better measure of the limits on future development and would provide a better measure of resource scarcity.

<sup>30</sup> *Geographic Areas Reference Manual*, U.S. Department of Commerce, Bureau of the Census, November 1994, Chapter 12.

<sup>31</sup> 30<sup>th</sup> National Agricultural Statistics Service, Washington, D.C.

**Table 2: Land Development and Urbanization by State (1992)**

State	Developed Land	Urban Population	State	Developed Land	Urban Population
AK	0.0%	67.5%	MO	5.2%	68.7%
NV	0.6%	88.3%	VT	5.3%	32.2%
WY	0.9%	65.0%	LA	5.8%	68.1%
UT	1.0%	87.0%	AL	6.2%	60.4%
ID	1.1%	57.4%	KY	6.4%	51.8%
NM	1.1%	73.0%	WI	6.6%	65.7%
MT	1.2%	52.5%	TN	8.0%	60.9%
OR	1.8%	70.5%	GA	8.2%	63.2%
AZ	1.9%	87.5%	VA	8.4%	69.4%
SD	2.3%	50.0%	IL	8.6%	84.6%
NE	2.5%	66.1%	SC	9.3%	54.6%
CO	2.5%	82.4%	NH	9.5%	51.0%
ND	3.0%	53.3%	IN	9.5%	64.9%
ME	3.3%	44.6%	NY	9.6%	84.3%
KS	3.8%	69.1%	MI	9.8%	70.5%
AR	3.9%	53.5%	NC	10.5%	50.4%
HI	4.2%	89.0%	PA	11.8%	68.9%
OK	4.2%	67.7%	FL	12.4%	84.8%
WA	4.2%	76.4%	OH	13.5%	74.1%
MS	4.4%	47.1%	DE	15.7%	73.0%
WV	4.4%	36.1%	MD	16.4%	81.3%
MN	4.5%	69.9%	RI	24.5%	86.0%
TX	4.8%	80.3%	MA	24.7%	84.3%
CA	4.9%	92.6%	CT	25.4%	79.1%
IA	4.9%	60.6%	NJ	31.9%	89.4%

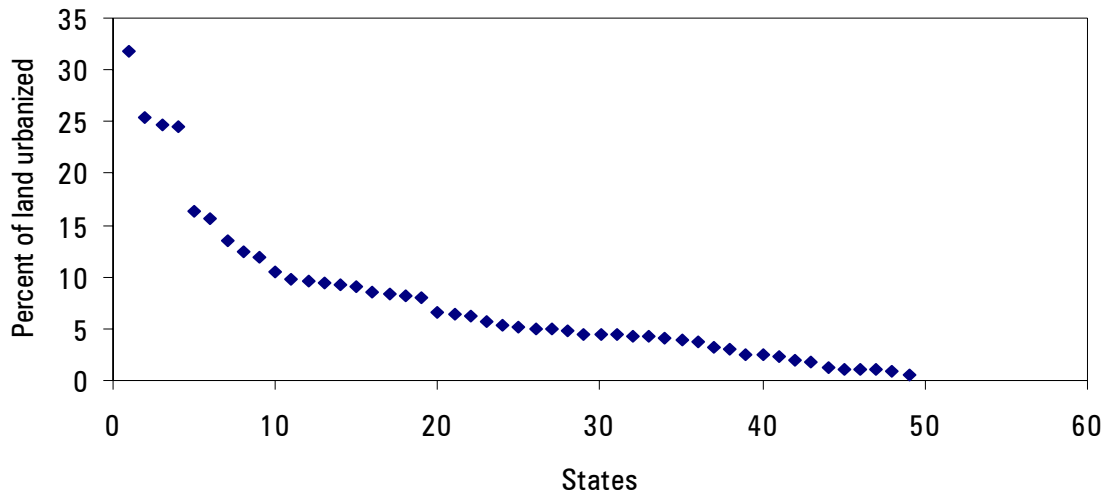
*Source:* Land-use and population data are for 1992 and from U.S. Bureau of the Census and Department of Agriculture. Land-use data represent the most recent years available since the results of the 1997 Census of Agriculture will not be released until March 1999 according to the Economic Research Service, U.S. Department of Agriculture.

## C. Urban Development

Concerns about the rapid development of land—and widely reported decline in farmland—are directly tied to things people see every day. Residents observe the manifestation of suburbanization every time they drive to work or go shopping because most people live in a relatively concentrated part of the state. Three-quarters of the nation's population lives in urban areas that make up less than 3.5 percent of the nation's land area (see box).<sup>32</sup>

<sup>32</sup> *Agricultural Resources and Environmental Indicators, 1996-97*, U.S. Department of Agriculture, Economic Research Service, July 1997, p. 11.

**Figure 1: Degree of Land Development By State: 1992  
(including federal land)**



### Urbanization and Land-use: The Case of Michigan

Michigan, the nation's 11<sup>th</sup> most-urbanized state, contains 37.4 million acres of land and keeps unusually detailed track of local land-use patterns. The state's metropolitan areas<sup>33</sup> include 10.4 million acres, or 26.8 percent of the total land area and house 82 percent of the state's population.<sup>34</sup> Overall, 22.7 percent of Michigan's land is devoted to uses other than farmland, forest, and water such as urban uses, parks, golf courses, and roads.<sup>35</sup> Most counties in Michigan have substantial tracts of open space, pasture, and farmland.

Within these metropolitan areas, however, almost 60 percent of the land is rural or agricultural in character. Not surprisingly, central city counties have the highest proportion of land in nonurban or nonagricultural uses. Even these counties devote just 44.3 percent of their land to nonagricultural uses on average, while suburban counties surrounding central cities dedicate 38.9 percent of their land to non-rural uses.

High-density cities house most of a metropolitan area's population on very small portions of a region's land area. Ann Arbor, for example, houses 38.7 percent of Washtenaw County's population on just 3.6 percent of its land area. One-third of Washtenaw County's land use was devoted to cropland and 17.8 percent to forest in 1992. Kalamazoo houses 35.9 percent of its county's population on just 4.2 percent of its land area. More than half of Kalamazoo County's land area, 53.9 percent, was devoted to cropland and forest use in 1992.

Thus, about 89 percent of Michigan's land area is devoted exclusively to rural uses or exists in rural counties.

<sup>33</sup> Defined by the U.S. Bureau of the Census as Metropolitan Statistical Areas (MSAs). The bureau classifies counties based on commuting patterns of residents. Central cities are large urban centers that dominate a region. Cities or urbanized areas must have at least 50,000 people to qualify as a central city. A metropolitan area must have a total population of at least 100,000. If these two criteria are met, the city and county will be classified as a Metropolitan Area, or MA. See *Geographic Areas Reference Manual*, Chapter 12.

<sup>34</sup> *County Agricultural Statistics, 1996*, Michigan Agricultural Statistics Service, January 1997. See also, Samuel R. Staley, *Urban Sprawl and the Michigan Landscape: A Market-Oriented Approach*, Mackinac Center for Public Policy/Reason Public Policy Institute, October, 1998.

<sup>35</sup> *Ibid.*

Counties closest to population and employment centers tend to experience the highest levels of land development. Thus, the transition from agricultural uses to suburban and urban uses is very visible and, as in all social transformations, becomes a source of conflict in local communities. As cities grow and more residents commute outside their city of residence to work, the rural atmosphere gives way to the concerns of family-oriented suburbanites. These increasing densities imply a diversification of the local economy as residential and commercial uses become more prevalent in the local real-estate market and economy.

These shifts in population reveal another important aspect of the politics and economics of growth. Big cities are losing people, reducing their overall density. Not surprisingly, some observers have interpreted the growth of suburban areas as a “beggar-thy-neighbor” effect where suburban growth is a function of the central city’s decline. But the problems of central cities are far more complex than this criticism of suburbanization suggests, as Part 6 will point out. Simply keeping people from moving away will not address the issues that are pushing them into the suburbs in the first place.

Many people believe that suburbanization increased dramatically in the 1980s. To some degree, this is because proponents of growth control popularize slogans that distort long-term and actual trends. For example, state task forces on farmland preservation popularize terms such as “10 acres an hour” (Michigan and Colorado),<sup>36</sup> “5 acres an hour” (Ohio) as rallying cries for restricting land development. Maryland Gov. Parris Glendening, in promoting his state’s Smart Growth initiatives, lamented the “loss of community” in suburbs and exaggerated the fragmentation of community: “People visiting with one another on front porches; neighbors helping neighbors; everyone keeping an eye on each others’ children; this simply cannot happen on 5-acre lots where people live for years without ever knowing their neighbors.”<sup>37</sup> (The governor does not mention that average lot size in Maryland is slightly larger than a half-acre.)<sup>38</sup>

Task force reports seldom note that the rate of farmland loss has moderated in most states since the 1970s and that urban land development may account for less than one-third of this decline. Indeed, historical loss rates are misleading because they do not account for moderating influences and the dynamics of land markets. For example, declining household sizes and the emergence of dual-income families are reducing the demand for housing in rural areas. While higher incomes are fueling the demand for larger houses, two-income families tend to locate in more urbanized areas as a mid-point between commutes and to facilitate family-related activities such as after-school athletics. In addition, full-cost pricing for infrastructure would affect the cost of housing on the urban fringe, requiring families to evaluate the trade-offs between buying an existing home versus building a new home.

## D. Historical Trends in Land Use

Nationally, the most rapid *rate* of suburbanization occurred between 1920 and 1950.<sup>39</sup> A study of more than three hundred fast-growth rural counties in the 1970s and 1980s—those on the fringe of development and

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<sup>36</sup> The task force reported that more than 854,000 acres of farmland were converted to other uses during this period, or “10 acres an hour” and a land mass “equivalent to a tract of land larger than Rhode Island.” *Policy Recommendations and Options for the Future Growth of Michigan Agriculture*, Michigan Farmland and Agricultural Development Task Force, December 1994, p. 4.

<sup>37</sup> See Gov. Glendening, “A New Smart Growth Culture for Maryland.”

<sup>38</sup> See “Growth Trends in Maryland,” <http://www.op.state.md.us/smartgrowth/growing.html>.

<sup>39</sup> Peter Mieszkowski and Edwin C. Mills, “The Causes of Metropolitan Suburbanization,” *Journal of Economic Perspectives*, vol. 7, no. 3 (September 1993), pp. 135–147. (<http://www.urbanfutures.org/j55971.html>)

most symbolic of sprawl—found land-use trends moderating. Population densities increased as communities matured. In the 1970s, for example, the average household used 0.87 acres of urban land.<sup>40</sup> By the 1980s, consumption of land by the average household had declined to .71 acres “as growth occurred and developed densities increased.”<sup>41</sup> These moderating trends are likely to continue as national population growth rates decrease. “The net effect of changing household number, household characteristics, and economic constraints on demand for land,” note economists Marlow Vesterby and Ralph Heimlich, “is likely to mean less conversion of land for urban uses in the future.”<sup>42</sup>

Double-income households may also lead to higher-density living as families locate in established communities to ensure access to two jobs. A survey of 3,583 prospective homebuyers by the National Association of Home Builders found men were willing to travel 35 minutes and women 30 minutes from their home to their work.<sup>43</sup> Research on suburban migration suggests that many families, particularly blue-collar families, prefer higher-density neighborhoods but move out of cities to take advantage of better housing and schools (see Part 6).<sup>44</sup>

One measure of how fast states are urbanizing is to calculate a “sprawl index.” The sprawl index compares a state’s population growth with its rate of urbanization. Though the index is a flawed indicator of urban sprawl (see box), it captures what many observers fear most about land development: the loss of open space as people and families use more and more land for housing. A sprawl index number greater than one indicates a state’s land is being developed at a rate faster than its population is growing. From 1970 to 1992, the last year for which reliable national data on urban land-use trends are available, the national population grew by 26 percent. The number of developed acres, however, grew by 90 percent. The sprawl index for the nation would be 3.52. Thus, for every 1 percent increase in population, developed acreage increased by 3.5 percent. The nation would be considered “sprawling.” In fact, all states had sprawl indexes greater than one during this period (see Appendix A).

Breaking the data down by time period, however, reveals a different story. From 1970 to 1982, the median sprawl index for the nation was 5.03.<sup>45</sup> By 1982 to 1992, the national median had fallen to 2.75. Individual states experienced substantial volatility from one period to the next. Of the ten most “sprawling” states for the 1970-82 era (based on the sprawl index), six were not in the top half of the nation for 1982 to 1992 (Table 3). Pennsylvania was the second fastest developing from 1970 to 1982 but fell to eleventh fastest from 1982 to 1992.

This moderating trend is also clear when national trends in major land uses since 1945 are compared (Figure 2). The dominant land uses remain grassland, pasture and range, forest, and cropland.<sup>46</sup> Despite widely cited reports on the pace of urbanization, urban land remains a very small part of overall land use. Indeed, the rapid rate of urbanization is largely a function of its small statistical base: an increase from 3 percent to 6

<sup>40</sup> Marlow Vesterby and Ralph Heimlich, “Land Use and Demographic Change: Results from Fast-Growth Counties,” *Land Economics*, vol. 67, no. 3 (August 1991), p. 284. (<http://www.urbanfutures.org/j514972.html>)

<sup>41</sup> *Ibid.*

<sup>42</sup> *Ibid.*, p. 289.

<sup>43</sup> *What Today’s Homebuyers Want*, National Association of Home Builders, 1996.

<sup>44</sup> David P. Varady and Jeffrey A. Raffel, *Selling Cities: Attracting Homebuyers Through Schools and Housing Programs* (Albany, NY: State University of New York Press, 1995).

<sup>45</sup> The median—the index number for the state at the midpoint (the 25<sup>th</sup> state)—is a better measure of trends since large index numbers for a few states skew the average.

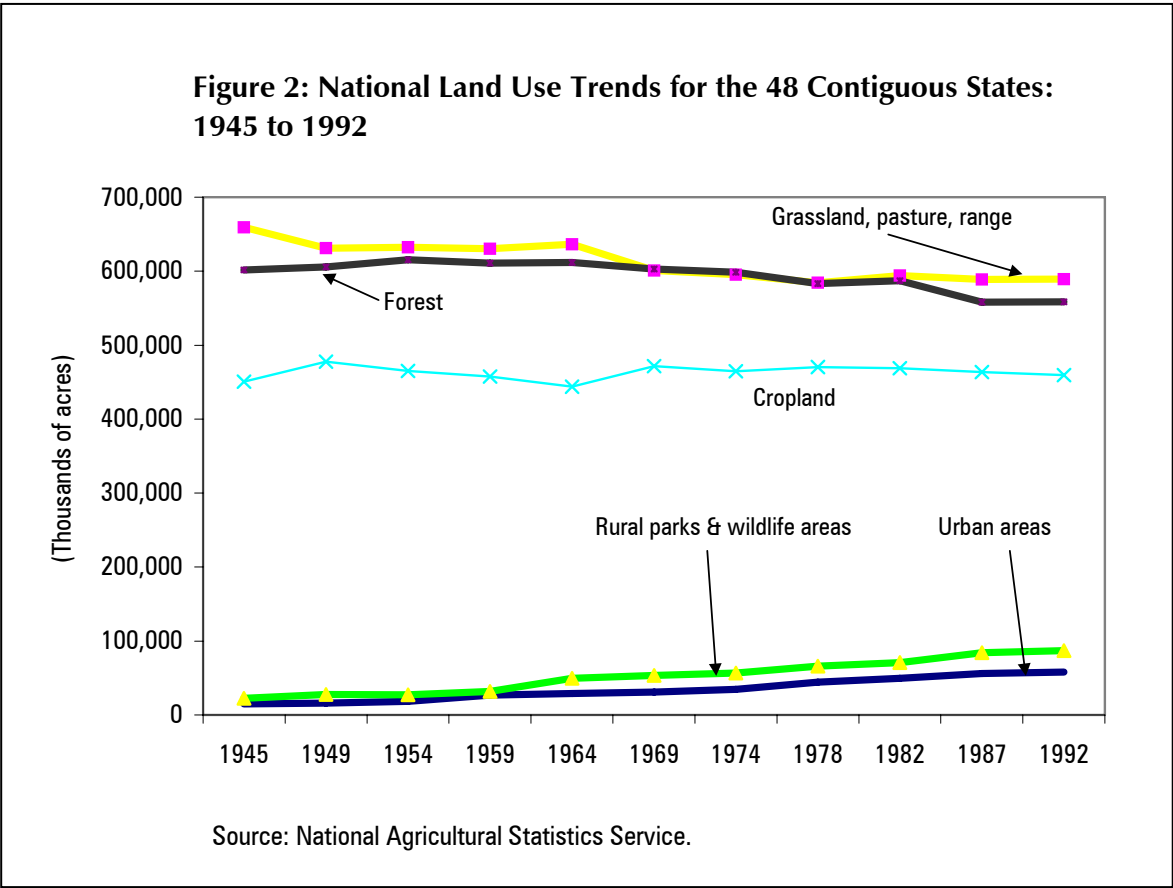
<sup>46</sup> Data from National Agricultural Statistics Service.



percent in urban land represents a 100 percent growth rate. Rural parks and wildlife areas have increased as dramatically as urbanized land. By 1992, 86.9 million acres were in protected rural areas and wildlife areas while 57.9 million acres were urbanized.

Table 3: Sprawl Index Rankings for Top Ten States in 1970-82 and 1982-92 Periods		
	Ranking for 1970 to 1982 Period	Ranking for 1982 to 1992 Period
New York	1	34
Pennsylvania	2	11
Massachusetts	3	37
Rhode Island	4	21
Ohio	5	16
Iowa	6	5
Connecticut	7	30
Maine	8	50
Alaska	9	45
Minnesota	10	49

Source: See Appendix A.



### Is the Sprawl Index an Adequate Measure of Sprawl?

One of the difficulties surrounding the debate over urban sprawl is developing an accurate way to measure it and its effects. Some analysts have used a “sprawl index” to measure how quickly land is being developed for urban purposes.

In a nutshell, the index compares population growth with urbanization. Urbanization is measured by the amount of land devoted to urban uses. If urbanization outstrips a state’s population growth, its sprawl index will be greater than one.<sup>47</sup> If, on the other hand, a state’s population growth outstrips urbanization, the index will be less than one. If a state’s population growth matches its rate of urbanization, the index will equal one. Generally, an index greater than one suggests sprawl exists. A complete list of states ranked by their sprawl index is contained in Appendix A.

Whether this index is, in fact, a relevant measure of sprawl is both an empirical and a subjective question. A sprawl index was calculated by the author for each state to determine whether it was statistically related to a few key land-use and growth indicators:

- Changes in cropland, pasture, and grassland (in acres) as an indicator of the loss of open space in communities;
- Changes in urban land (in acres) as a measure of how much land is taken up with urbanization; and
- Changes in the proportion of land devoted to urbanized uses as an indicator of the pace of urbanization;
- Population growth as a measure of the amount of development pressure facing a state; and
- State economic output per person as a measure of economic growth.<sup>48</sup>

An index at the metropolitan area level would be a more appropriate measure of this relationship. Unfortunately, consistent and reliable data on changes in open space, farmland, urbanized area, and output are not available at the metropolitan area. Thus, state level data were used to test for the relationship between the sprawl index and these measures of open space and economic development.

The results are disappointing for those hoping the index is useful as a measure of the negative aspects of sprawl.<sup>49</sup> The only variable the index correlates with consistently is population growth. The index appears to track well with the pace of urbanization during the period 1982 to 1992, but is not significantly correlated with reductions in farmland or pasture in any period. Thus, the index appears to capture development pressures, but not whether sprawl erodes open space or consistently influences the pace of urbanization. Other factors must explain changes in farmland, land urbanization, and population growth.

<sup>47</sup> Sprawl Index:  $SI = \% \Delta \text{Urban Land} / \% \Delta \text{Population}$  (where  $\Delta$  represents the standard notation for change. Thus, if  $\% \Delta \text{Population} > \% \Delta \text{Urban Land}$ , then  $SI < 1$  and if  $\% \Delta \text{Population} < \% \Delta \text{Urban Land}$ , then  $SI > 1$ ).

<sup>48</sup> Economic output is measured by Gross State Product, or GSP, which measures the value of all goods and services produced within a state. The U.S. Department of Commerce, Bureau of Economic Analysis provides estimates of state GSP beginning in 1977. Thus, only the 1982 to 1992 period could be used for this analysis.

<sup>49</sup> States with a sprawl index less than one (negative) were excluded from the correlation analysis. These states had either declining population and increasing urbanization or increasing population and declining urbanization. Two cases (Iowa and New York) were dropped from the 1970 to 1992 period, one case (New York) was dropped for the 1970 to 1982 time period, and nine cases were dropped from the 1982 to 1992 period. See Appendix A for a complete list of states and their sprawl indexes for these periods.

Sprawl Index Period	1970 to 1982	1982 to 1992	1970 to 1992
Change in cropland, pasture, & grassland	-0.0148	0.1313	-0.15615
Change in urban land (absolute)	-0.0648	0.3066**	-0.1122
Increase in % of urban land	-0.0665	0.3065**	-0.11357
Population growth	-0.4026**	-0.448**	-0.4526*
Change in economic output	N/Av.	0.0021	N/Av.

Note: Estimates are Pearson Correlation Coefficients. (\*) indicates statistical significance at the 5% level and (\*\*) indicates significance at the 98% or higher level. Estimates exclude states where the sprawl index was negative (see footnotes).

The national and statewide data, then, suggest that suburbanization and low-density development have not seriously jeopardized the rural character of most states. Moreover, state trends in urban land use suggest that the pace of urbanization in rural areas is slowing. Over time, the pace of urbanization in any single location appears to constantly adjust, with high-growth areas becoming low-growth areas and vice versa.<sup>50</sup> Nevertheless, concerns about the impact of suburbanization on the state's open space and agricultural sector have persisted, particularly since some analysts have claimed that new development displaces some of the nation's most productive farmland. Concerns about urban sprawl are driven by local concerns about open space and the loss of rural character. Other important issues concern the impacts on government costs and efficiency as well as the effects of public policy when it distorts market signals and subsidizes development patterns such as low-density residential development. The next sections evaluate these concerns more fully.

<sup>50</sup> See also Marlow and Vesterby, "Land Use and Demographic Change."

## Part 4

# The State of the Nation's Farmland

Concerns about the loss of farmland drive much of the sprawl debate. Issues range from a general fear of less open space to concerns about the state of the nation's food supply. At least seven states have initiated task forces to find ways to preserve farmland and protect their agricultural industry. Most statewide growth-management laws include farmland preservation goals. Often, urbanization is cited as the chief cause of farmland loss in the states. These fears have become part of general perceptions on land use. Suburbanization, observed Vice President Al Gore,

*can't help pushing local farmers out of business, since family farms can't pay the rising property taxes. Orchards and dairy farms go under; the commute gets even longer; and nobody wins, least of all our children. America . . . could become the largest net importer of food, instead of the world's largest exporter by the next century.<sup>51</sup>*

As part of an Earth Day event in Utah, members of a local Future Farmers of America submitted essays on open space and farmland. Despite the fact 99 percent of Utah's land area is undeveloped, a newspaper noted the "common theme was a fear there will be no land for them to farm in the future."<sup>52</sup>

## A. Historical Trends in Farmland

For many, the loss of farmland is best illustrated by the loss of farms.<sup>53</sup> Most states have experienced a persistent drop.<sup>54</sup> Nationally, the number of farms fell from 6.4 million in 1910 to 2.0 million in 1997, a 67.8 percent drop. The largest decline occurred during the 1950s when 1.6 million farms disappeared.<sup>55</sup> The dramatic decline in the number of farms is misleading, however, because the average farm size has increased. Many farms disappeared through consolidation within the industry.

Land in farms, potentially a more direct indicator of open-space loss, fell from 1.2 billion acres in 1950 to 968 million acres in 1997 (Figure 3).<sup>56</sup> At first glance, this decline might seem startling: farmers are growing food on about 20 percent less land. A more detailed analysis of farmland-loss trends is less alarming.

<sup>51</sup> Speech at the Brookings Institution, Washington, D.C., September 2, 1998.

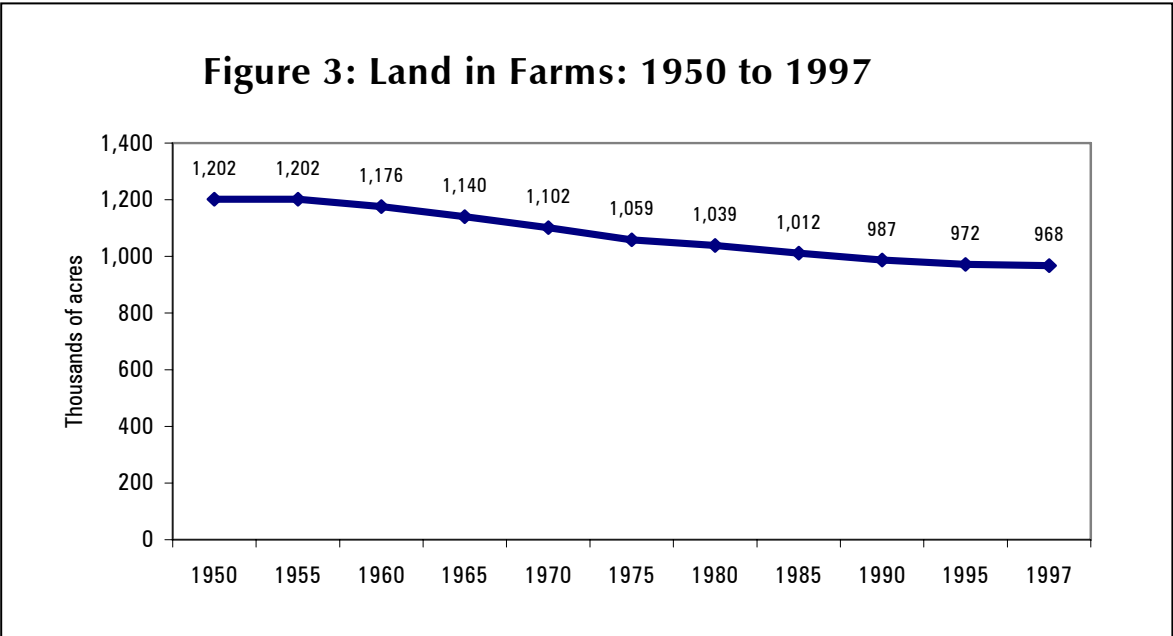
<sup>52</sup> Jerry Spangler, "Farmers and activists share fear: loss of land," *Deseret News*, April 22, 1998.

<sup>53</sup> Some states, such as Texas, have recently experienced an increase in the number of farms. After declining steadily from 418,000 farms in 1910, the number of farms in Texas bottomed out in 1978 at 185,000 and then rose slightly to 205,000 by 1997. *Source:* National Agricultural Statistics Services, Washington, D.C., 1998.

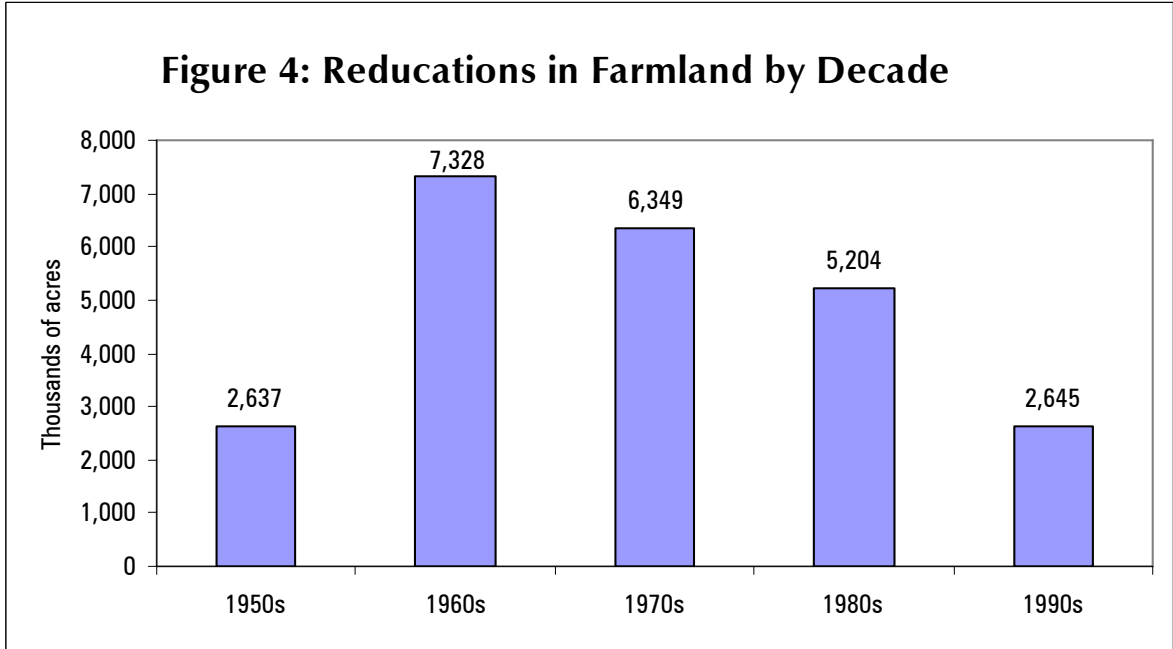
<sup>54</sup> The number of farms in Michigan, for example, fell from over 203,261 in 1900 to just 52,000 in 1997, a 74.4 percent decline. *Michigan Agricultural Statistics, 1996-97*, Michigan Agricultural Statistics Service, 1997, Table 1-2, p. 36

<sup>55</sup> National Agricultural Statistics Service.

<sup>56</sup> *Ibid.*



The most significant losses occurred during the 1960s. The nation lost 7.3 million acres of farmland annually that decade (Figure 4). After the 1970s, farmland loss moderated. The nation lost about 6.3 million acres per year in the 1970s and 5.2 million acres in the 1980s. Annual farmland loss was cut almost in half during the 1990s, averaging 2.6 million acres lost each year.



Thus, projections of future farmland losses based on historical patterns are unreliable. Take the case of Michigan. Michigan had 12.7 million acres in farmland in 1970. During the 1960s, the state lost 2.7 million acres of farmland. If this acreage loss had been sustained, Michigan would have run out of farmland within

50 years.<sup>57</sup> Farmland losses moderated to 1.3 million acres during the 1970s. At that pace, Michigan would have run out of farmland within 100 years. Now, at 1990s acreage loss rates, Michigan has more than two centuries of farmland left. Of course, even characterizing trends in this way is not meaningful. Rates of decline may continue to slow, or even reverse. Ironically, farmland loss was moderating while newspaper headlines in Michigan were highlighting the effects of urban sprawl and a governor's task force recommended legislative action to protect farmland from land development.

Similar trends are evident nationally. While farmland loss is highly variable, a general trend toward moderation is evident (Table 4). Nationally, the amount of land in farms fell by 6.2 percent during the 1960s, then moderated to 5.8 percent in the 1970s, 5.0 percent in the 1980s, and to 2.7 percent in the 1990s.

	Decade rate of farmland loss			
	1960s	1970s	1980s	1990s
California	5.7%	7.7%	8.9%	3.7%
Colorado	1.5%	9.3%	8.1%	2.6%
Florida	14.9%	9.5%	18.7%	7.9%
Georgia	20.9%	13.8%	16.7%	8.0%
Indiana	9.8%	4.0%	3.0%	3.5%
Maryland	17.9%	10.7%	18.2%	9.5%
Minnesota	4.6%	1.9%	1.0%	1.0%
New Jersey	27.4%	3.8%	14.7%	6.6%
North Carolina	14.6%	23.0%	17.1%	10.3%
Ohio	8.3%	8.0%	3.7%	4.6%
Pennsylvania	17.1%	11.8%	10.0%	7.1%
U.S. average	6.2%	5.8%	5.0%	2.7%

*Source:* Author's calculations based on data from National Agricultural Statistics Service, 1998. See Appendix B and Appendix C.

Farmland loss varies significantly by individual state. Farmland loss increased through the 1980s for California and then dropped to 3.7 percent in the 1990s. In Minnesota, land in farms fell by almost 5 percent in the 1960s, but declined by just 1 percent in the 1980s and 1990s. Ohio seems to be an outlier: farmland disappeared at about 8 percent per decade during the 1960s and 1970s, moderated to below 4 percent during the 1980s, and then increased in the 1990s. The current rate, however, is still almost half the loss rate of earlier decades.

The continued moderation in farmland loss is important. If farmland loss is moderating, predictions about future losses will be biased if they assume no change in current trends. This is clear when a simple mathematical extension of previous loss rates is projected into the future. Farmland loss rates were projected for eleven states based on the decline in the number of acres in farms during each decade (Table 5). These acreage losses were then projected into the future using 1990 as the base year.

<sup>57</sup> Note that this implies Michigan would lose farmland at *increasing rates*. Since the base acreage declines as land is converted to other uses, a 2.7 million acre loss each decade would represent a 21.1 percent loss in the 1970s, a 27.0 percent loss in the 1980s, a 37 percent loss in the 1990s, etc.

In Minnesota, farm acreage losses experienced in the 1960s would have resulted in the complete disappearance of all farmland in 200 years (Table 5). With loss rates similar to the 1990s, Minnesota has 1,500 years left. In California, loss rates equivalent to the 1960s would eliminate all farmland (using 1990 as base year) in 140 years. Losses equivalent to those in the more moderate 1990s extend the year of “zero farmland” to almost 400 years. In Colorado, farm acreage losses were dramatic in the 1970s and 1980s, but moderating losses in the 1990s push the year of “zero farmland” to more than 550 years. Thus, historical patterns of farmland loss are not reliable predictors of future farmland loss.

**Table 5: Trend Projections of Farmland Loss in Selected States: Years to Zero Farmland (1990 Farmland as Base Year)**

	Decade rate of farmland loss			
	1960s	1970s	1980s	1990s
California	140	110	103	385
Colorado	551	90	114	552
Florida	42	78	44	182
Georgia	27	52	50	179
Indiana	86	233	326	407
Maryland	34	68	45	150
Minnesota	200	800	1000	1500
New Jersey	22	218	58	218
North Carolina	37	28	49	139
Ohio	98	111	260	312
Pennsylvania	39	68	90	203

Source: Author’s calculations based on data from National Agricultural Statistics Service, 1998.

## B. Farmland Loss and Urbanization

While conventional wisdom claims urbanization is the primary culprit in farmland loss, the reality may be quite different. Urbanized land area increased by 8.3 million acres in the United States from 1982 to 1992,<sup>58</sup> a 17.4 percent increase. Total cropland, grasslands, and pasture declined by 14.4 million acres<sup>59</sup> during the same period. Even if all land converted from farmland went to urban uses (**not** parks, forests, or other recreational uses), urbanization would account for a little more than half (57.8 percent) of the nation’s farmland loss. If the national decline<sup>60</sup> in harvested forests is included as another “victim” of urbanization—adding 8.5 million acres to the total lost rural space—urbanization could account for 36.2 percent of the loss in rural space. An analysis of cropland trends from 1949 to 1992 by Ohio State University economist Luther Tweeten found that 26 percent of the decline in cropland could be explained by urbanization.<sup>61</sup> Changes in

<sup>58</sup> *Major Land Uses, 1992*, U.S. Department of Agriculture, Economic Research Service, September, 1995. Data for 48 contiguous states.

<sup>59</sup> *Ibid.*

<sup>60</sup> Forestland has actually increased in the United States since the turn of the century. The decline since 1954 does not account for the fact substantial amounts of forestland have been added to rural parks and wildlife areas.

<sup>61</sup> Luther Tweeten, “Competing for Scarce Land: Food Security and Farm Preservation,” paper presented to the American Agricultural Law Association at Minneapolis, Minnesota, October 17, 1997.

the economic fortunes of the agricultural industry accounted for 74 percent of the decline. The remaining farmland and forest loss must be related to non-urban causes such as conversion to open space, parks, wildlife reserves, or other recreational uses. Suggestions that urbanization is the primary “threat” to farmland preservation are not clearly supported by land-use trends at the national or state level.

This simplistic characterization of land uses often obscures more than it reveals. From 1949 to 1992, for example, land in urban uses increased by 39.7 million acres to 57.9 million.<sup>62</sup> Land in rural parks and wildlife areas increased by 59.2 million acres to 86.9 million during the same period. Thus, on a national level, the nation protected one-third more land than it developed.

Similar trends are evident when acreage loss rates are compared among states. In some cases (e.g., California and Colorado), land devoted to cropland and pasture increased while land simultaneously was converted to urban uses (Table 6). In states where farmland declined, urbanization accounted for a relatively small part of the loss. In Indiana, for example, farm-related land uses fell by 645,000 acres while urbanization used 139,000 acres (about 22 percent).

In New Jersey and Maryland, urbanization outpaced the drop in farm-related uses. Yet, once changes in forest land are considered, the statistical picture is murkier. While in New Jersey, urbanization appears to just offset the decline in forest and farm-related uses, Maryland added 54,000 acres of forest. While urbanization consumed another 188,000 acres, forest uses became even more widespread. Land in farm-related uses declined by less than half (45 percent) of the increase in urbanization and forest use.

State	Change (thousands of acres)		
	Cropland & Pasture	Forest	Urban Land
California	700	-2,364	1,124
Colorado	701	-972	246
Florida	-779	-642	491
Georgia	-757	-137	352
Indiana	-645	418	139
Maryland	-109	54	188
Minnesota	-688	-11	-186
New Jersey	-109	-176	263
North Carolina	-527	-106	307
Ohio	-313	786	266
Pennsylvania	-490	-348	174
U.S.	-14,442	-8,493	-8,312

Source: National Agricultural Statistics Service.

State-level data on farmland loss do not capture the local effects of the loss of farmland and open space. Many people are less interested in the fate of farms on the other side of the state than the farm in their own backyard. Even if a state is not facing significant farmland loss overall, in urbanizing areas the losses can be

<sup>62</sup> *Major Land Uses, 1992*, U.S. Department of Agriculture, data on computer disk.



severe. The case of Washtenaw County, Michigan is instructive. Washtenaw County has been urbanizing at rapid rates for more than two decades, a consequence in part of economic growth spun off from the University of Michigan in Ann Arbor and continuing out-migration from nearby Detroit. As more and more people moved to the Ann Arbor area, land was developed for residential and commercial uses. As farmland was converted to urbanized forms of development, county commissioners responded to grassroots citizen concerns about preserving open space by placing on a countywide ballot an initiative to purchase the development rights of farmland by increasing the local sales tax. The measure was defeated at the ballot box, but the case provides an important reminder of concerns about lost open space and land development.

### Changes in Cropland Vary Significantly

Changes in cropland vary significantly from period to period. While conventional wisdom paints a direct relationship between agricultural and urban uses, cropland—the land used to grow food—changes from period to period, sometimes increasing and sometimes declining depending on the demand for food.

Cropland declined from 1954 to 1964, then increased by 6.3 percent from 1964 to 1969. Cropland then declined again by 1.5 percent from 1969 to 1974, increased from 1974 to 1978 (a period of significant out-migration from central cities) and then fell modestly through 1992. Despite rapid urbanization, the agricultural industry has not been prevented from adjusting cropland to meet other needs.

Over the long term, the importance of land is declining and now accounts for less than 20 percent of the value added in agriculture.<sup>63</sup> The relative importance of land is likely to fall further as alternative technologies such as biomass and hydroponics increase food output.

Cropland loss in the U.S.: 1949 to 1992			
Year	Cropland (000s acres)	Avg. Annual Loss	Change (%)
1945	450,693		
1949	477,838	6,786.25	6.0%
1954	465,327	-2,502.2	-2.6%
1959	457,483	-1,568.8	-1.7%
1964	443,801	-2,736.4	-3.0%
1969	471,707	5,581.2	6.3%
1974	464,702	-1401	-1.5%
1978	470,480	1,444.5	1.2%
1982	468,888	-398	-0.3%
1987	463,580	-1,061.6	-1.1%
1992	459,654	-785.2	-0.8%

Source: U.S. Department of Agricultural, Economic Research Service

The Washtenaw County initiative occurred despite the fact Michigan, while one of the most urbanized states in the nation, has substantial amounts of open space available, even in metropolitan areas. About 10 percent

<sup>63</sup> Two-thirds of agriculture's productivity is attributed to capital and the remainder is labor. See Luther Tweeten, *Farm Policy Analysis* (Boulder, Colorado: Westview Press, 1989), Table 1.4, p. 9.

of Michigan's land is developed (see Table 2). Overall, 22.7 percent of Michigan's land is classified as a special use (i.e., highways, state and federal parks, mining, airports, industrial parks in non-urban areas, etc.).<sup>64</sup> Counties with central cities, such as Ann Arbor in Washtenaw County, devote less than 45 percent of their land to urban and other non-rural uses. In other words, even in central-city counties, more than half of the land is devoted to pasture, cropland, forest, or water. Counties that are part of metropolitan areas, but do not include central cities, still have more than 60 percent of the land in rural and agricultural uses on average.

## B. Prime Farmland

Another concern raised by many is the loss of prime and unique farmland. Prime farmland is highly productive as a result of irrigation, location, soil type, and a variety of other criteria. "Land classified as prime farmland," notes the U.S. Department of Agriculture, "has the growing season, moisture supply, and soil quality needed to sustain high yields when treated and managed according to modern farming methods."<sup>65</sup> Nationally, 24 percent of rural nonfederal land and half of all cropland is classified as prime.<sup>66</sup> About 28 percent of urbanization uses prime farmland.<sup>67</sup> One-third of converted land is nonprime forestland, and another 24 percent is nonprime farmland.<sup>68</sup>

Designation as prime farmland, however, does not necessarily imply it is economically productive. Some of the nation's most productive farmland is not prime. "Florida and Arizona," the U.S. Department of Agriculture observed recently, "have little prime farmland . . . but these areas rank among the most economically productive in the Nation."<sup>69</sup> A number of factors influence the productivity of agriculture, including weather, erosion, the use of fertilizers, pesticides, irrigation, and other technologies. In fact, the nation's agricultural output has increased tremendously in recent years, largely as a result of better harvesting techniques and new technology. Capital equipment accounts for more than two-thirds of agriculture's productivity while land accounts for 20 percent and is declining.<sup>70</sup>

## D. Farmland Loss and the Food Supply

Concern about the loss of farmland is tied—often explicitly—to agricultural production. A recent Michigan State University study warned: "[Farmland acreage trends] should assure that Michigan citizens will have sufficient land for food production to the year 2010, but future generations may not be able to produce enough food if the population continues to grow."<sup>71</sup> An impending food shortage was implied when the authors wrote: "Farm products will continue to be exported from and imported into Michigan, but other states will also experience decreases in farmland and cropland acreages and face similar challenges to

<sup>64</sup> In rural counties, 17 percent of the land on average is in this land-use classification. See Staley, *Urban Sprawl and the Michigan Landscape*, pp. 8-11.

<sup>65</sup> *Agricultural Resources and Environmental Indicators: 1996-97*, p. 42.

<sup>66</sup> *Ibid.*, p. 13.

<sup>67</sup> *Ibid.*

<sup>68</sup> *Ibid.*, Figure 1.1.6, p. 15.

<sup>69</sup> *Ibid.*, pp. 42, 44.

<sup>70</sup> Tweeten, *Farm Policy Analysis*, Table 1.4, p. 9.

<sup>71</sup> "Land Resources," Special Report 80, Michigan Agricultural Experimental Station, Michigan State Univ., January 1995.

provide an adequate food supply.”<sup>72</sup> Growth-management laws also explicitly address these concerns in their state planning goals. South Carolina’s County Planning Act lists “protecting the food supply” as one of nine justifications for comprehensive county-wide planning.<sup>73</sup>

Fears of future food shortages are greatly exaggerated and run contrary to trends in cropland, production, and food availability. Despite small declines in land in farms and virtually constant amount of land devoted to cropland, food production and productivity have increased dramatically. World output for meats, rice, and fish has increased by more than one-third since 1980 (Table 7). From 1950 to 1992, worldwide grain production per person increased 154.5 percent.<sup>74</sup> These increases were largely a product of the ongoing technological revolution in agriculture.

The U.S. Department of Agriculture’s index of national farm output—how much food is actually produced—rose from 73 in 1970 to 92 in 1980 to 108 in 1993,<sup>75</sup> a 17.4 percent increase over 1980 levels and 47.9 percent increase since 1970. Moreover, the nation continues to be a net exporter of agricultural products.<sup>76</sup> Total farm income increased by 63 percent from 1980 to 1994, according to the U.S. Bureau of Economic Analysis.<sup>77</sup> Indeed, recent projections of a drop in farm income are the result of declining export.<sup>78</sup>

Product	Production in 1980	Production in 1994	% Increase
Barley	156.7	160.8	2.6%
Corn	397.5	470.4	18.3%
Meats	135.9	194.7	43.3%
Rice	398.9	534.7	34.0%
Wheat	440.1	564.1	28.2%
Fish catches	72.0	101.4	40.8%

Source: U.S. Department of Agriculture, Economic Research Service, *World Agriculture-Trends and Indicators*.

<sup>72</sup> Ibid.

<sup>73</sup> S.C. Code of Laws, Chapter 27, Article 1, Section 4-27-40 of the County Planning Act.

<sup>74</sup> The world’s average grain yield was 1.1 tons per hectare in 1950 and 2.8 tons per hectare in 1992. Dennis Avery, “Saving the Planet with Pesticides: Increasing Food Supplies while Preserving the Earth’s Biodiversity,” p. 57, in *The True State of the Planet*, ed. Ronald Bailey (New York: The Free Press, 1995). For an examination of agricultural productivity trends, see also Jesse H. Ausubel, “Can Technology Spare the Earth?” *American Scientist* vol. 84 (March/April 1996), pp. 166-178; Paul E. Waggoner, Jesse H. Ausubel, and Iddo K. Wernick, “Lightening the Tread of Population on the Land: American Examples,” *Population and Development Review*, vol. 22, no. 3 (September 1996), pp. 531-545; and Luther Tweeten, “Dodging a Malthusian Bullet in the 21<sup>st</sup> Century,” Department of Agricultural Economics, The Ohio State University, unpublished paper.

<sup>75</sup> *Agricultural Outlook*, U.S. Department of Agriculture, Economic Research Service, published monthly cited in *The American Almanac* (Statistical Abstracts of United States), Table 1098, p. 672.

<sup>76</sup> *Foreign Agricultural Trade of the United States*, U.S. Department of Agriculture, Economic Research Service, January – February issues. In 1994, the nation exported \$45.7 billion worth of agricultural products, a 10.9 percent increase since 1980. The total value of U.S. exports fell from 1980 to 1986 to \$26.2 billion, then increased steadily. The value of U.S. exports surpassed 1980 levels in 1992. These data are not adjusted for inflation. Food prices increased by 71 percent from 1980 to 1995, according to the U.S. Department of Labor. In contrast, the Consumer Price Index for all items increased by 85 percent during this period. Since prices for food were not increasing as fast as other items, most notably housing and medical care, food was cheap relative to other products. In contrast, wages, salaries, and benefits increased by 154 percent during this period.

<sup>77</sup> Farm national income increased from \$37.3 billion in 1980 to \$60.8 billion in 1994 after adjusting for inflation. See *The American Almanac* (Statistical Abstracts of the United States), Table 1086, p. 666.

<sup>78</sup> Scott Kilman, “U.S. Expects Farm Profit to Fall 15.8% This Year,” *Wall Street Journal*, September 25, 1998, p. A2.

Not surprisingly, the U.S. Department of Agriculture’s Economic Research Service concluded in a 1997 report “losing farmland to urban uses does not threaten total cropland or the level of agricultural production which should be sufficient to meet food and fiber demand into the next century.”<sup>79</sup>

In fact, higher yields and stocks have allowed a new industry to emerge. Corn and other crops are now used for industrial and other non-feed uses such as fuel alcohol and energy from biomass. Hydroponics—growing crops in a nutrient-rich, water-based solution—is also commercially viable (without subsidies), dramatically reducing the importance of land in food production. Whether nonfood uses create significant new demand for crops will depend on market factors such as the scarcity of other energy sources. “The use of cropland to produce biomass as a primary product will depend on returns to biomass crops exceeding the return to crops currently produced,” notes the U.S. Department of Agriculture.<sup>80</sup>

## E. Farm Output, Land Prices, and the Real-estate market

If farmers can grow more food on less land, more land is available for other uses such as open space, commercial development, or housing. In fact, the U.S. Department of Agriculture recently found that, although cropland acreage has undergone little net change since 1945, whether cropland is harvested, idle, or lays fallow depends on federal programs and economic markets.<sup>81</sup> Strong export markets fueled expansions of cropland in the 1970s and 1980s, but cropland fell as millions of acres were diverted into federal programs.<sup>82</sup> Idle cropland, for example, has varied from 20.5 percent of the total used for crops in 1987 to 5.5 percent in 1982.<sup>83</sup> In 1992, 56 million acres, or 16.6 percent of the total amount used for crops, was idle. An analysis of the causes of farmland loss between 1949 and 1992 by Ohio State University agricultural economist Luther Tweeten found the “lack of farm economic viability rather than urban encroachment” was the principal reason for cropland loss.<sup>84</sup>

Changes in the relative importance of land are evident in real-estate markets. More urbanized states have higher land prices overall, and agricultural land values reflect this competition. The nation’s most urbanized state, New Jersey, has the highest agricultural-land value (\$6,221 in 1995). States with the lowest land values typically are the most rural. Table 8 compares the ten most-urbanized states with the ten least-urbanized states based on 1992 land values and uses. The ten most-urbanized states—located mostly in the Northeast—have average land values exceeding \$1,000 per acre. Of the remaining 38 states, only five—California, Iowa, North Carolina, Ohio, and Vermont—had farmland values exceeding \$1,000 per acre. In contrast, with the exception of Idaho, the ten least-urbanized states had average land values well under \$500 per acre. The relationship between urbanization and agricultural land values is strikingly direct: the more competition by other uses, the higher agricultural land prices are (Figure 5).<sup>85</sup>

<sup>79</sup> *Agricultural Resources and Environmental Indicators, 1996-97*, p. 13.

<sup>80</sup> *Ibid.*, p. 20.

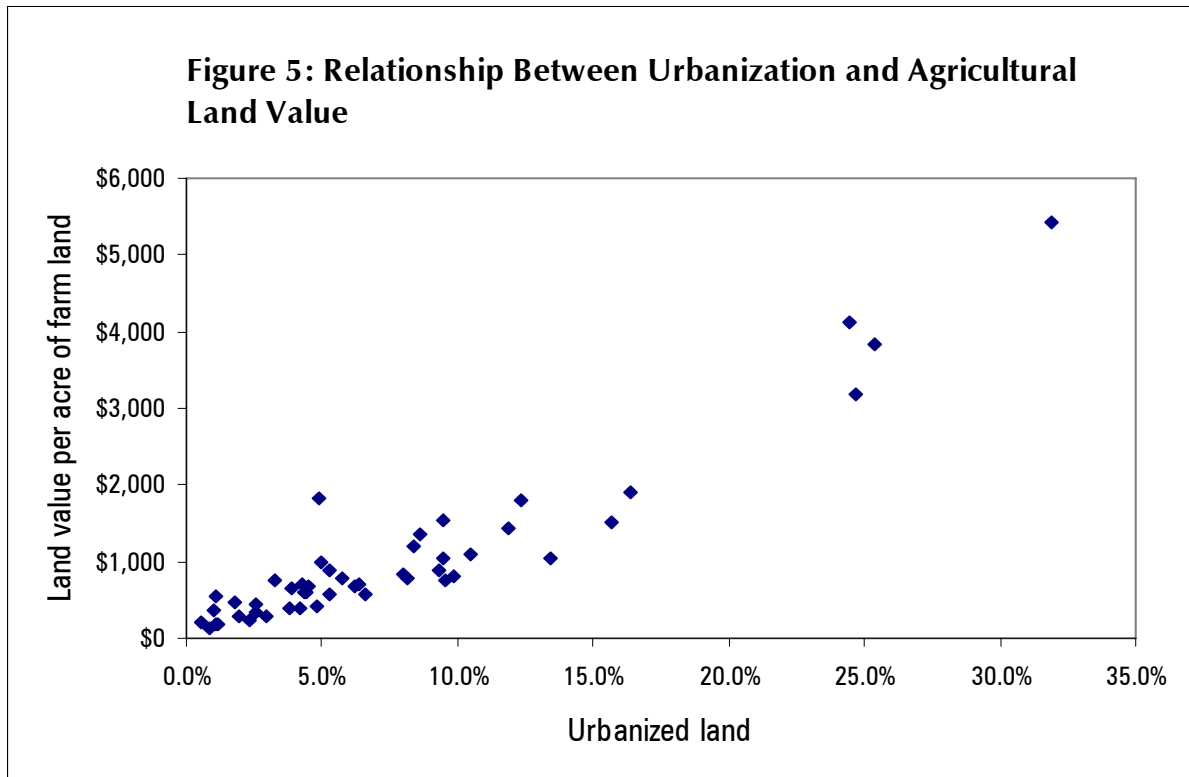
<sup>81</sup> Arthur B. Daugherty, *Major Uses of Land in the United States: 1992*, U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 723, September 1995, pp. 11-12.

<sup>82</sup> *Ibid.*

<sup>83</sup> *Ibid.*, Table 6, p. 10. These data exclude cropland used only for pasture.

<sup>84</sup> Tweeten, “Competing for Scarce Land.”

<sup>85</sup> The Pearson Correlation Coefficient between urbanization and agricultural land was 0.939 where 1 would represent a perfect correlation. Data for 1992 were used since more recent data on land use will not be available until March, 1999.



**Table 8: Urbanization and Agricultural Land Values (1992)**

Ten most developed states			Ten least developed states		
State	% Dev.	Land value	State	% Dev.	Land value
NJ	31.9%	\$5,414	NE	2.5%	\$453
CT	25.4%	\$3,830	SD	2.3%	\$243
MA	24.7%	\$3,177	AZ	1.9%	\$286
RI	24.5%	\$4,111	OR	1.8%	\$457
MD	16.4%	\$1,903	MT	1.2%	\$186
DE	15.7%	\$1,510	NM	1.1%	\$190
OH	13.5%	\$1,046	ID	1.1%	\$557
FL	12.4%	\$1,797	UT	1.0%	\$362
PA	11.8%	\$1,442	WY	0.9%	\$124
NC	10.5%	\$1,093	NV	0.6%	\$200

Source: U.S. Department of Agriculture, Economic Research Service. Land values are assessed values.

Agricultural land often cannot compete economically, prompting the conversion of farmland to urban or other uses. In Portland, Oregon, the assessed value (taxed) of an acre of farmland is \$954 while an urbanized acre is valued at \$67,135.<sup>86</sup> More importantly, perhaps, agricultural land prices were unable to keep pace

<sup>86</sup> Assessed values of vacant parcels reported by Metro, Portland's regional planning agency, cited in John A. Charles, *The Dark Side of Growth Controls: Some Lessons from Portland*, Goldwater Institute Arizona Issue Analysis No. 150, May 1998, p. 5, Figure 2. These differences are exaggerated by Portland's urban growth boundary (UGB) which is discussed

with the growth of prices for urban land. From 1992 to 1996, the value of vacant urban land increased 61 percent while the average increase for farmland was 52 percent.<sup>87</sup> The value of agricultural production can not generate the economic value necessary to compete effectively with alternative uses, such as housing, office space, roads, or even a shopping mall.

## F. Conclusion

Concerns that farmland loss will cripple the agricultural industry or significantly reduce the nation's food supply are not supported by the evidence. Farmland loss has moderated significantly in recent years, and world population growth is expected to level off well before a crisis in food production emerges. Even if food scarcity doubled the price of farm products, the resulting decline in real income of Americans would fall by only 2 percent.<sup>88</sup>

Farmland conversion indicates changing priorities and competition in real-estate markets. Given the rapid increases in agricultural productivity, the value of farmland relative to other uses—including forest use, open space, housing, and commercial development—is falling. More importantly, farmland closest to urban areas is converted first.

Although urban sprawl does not appear to be “gobbling up” land at unprecedented rates, this does not imply that land development is benign. Even if farmland preservation were not an issue, concerns over the environmental impacts of development and the costs of providing services to new residential and commercial subdivisions would be important issues that might justify public attention.

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later in this report. The UGB determines what land is developable and what land is not by making intensive development on land outside the boundary very difficult. Land inside the boundary sells for about ten times the price of land outside the boundary. For a more complete discussion, see Richard H. Carson, *Paying for Our Growth in Oregon* (Beaverton, Oregon: New Oregon Meridian Press, 1998). (<http://members.aol.com/odumonarch/pogo-rpt.htm>)

<sup>87</sup> Ibid.

<sup>88</sup> Tweeten, “Competing for Scarce Land.”

## Part 5

# Suburbanization and the Cost of Government

One of the more controversial aspects of suburbanization is whether development “pays its way.” Many people would have fewer concerns about land development if they believed tax revenues from new development covered the costs of providing services, particularly roads, sewers, water services, solid waste disposal, and schools. Yet several studies have found that residential development, particularly low- and middle-income housing, is a “losing proposition” financially.<sup>89</sup> Policymakers, however, must take care in how they interpret the implications for land use and growth policy.

## A. Does New Development “Pay Its Way”?

The fear that new development may not pay its way is partly a function of how these services are provided. Many public services—including schools—are “priced” at their average cost. For example, when a local government considers extending a water line to a new home, it often bases its fee on a citywide average, not on the actual costs of extending the hook-up to that particular site or development. In addition, the first developers must cover the full cost of extending the main trunk line to the new development based on established density guidelines or the zoning code, regardless of the number of units the developer plans to build. The initial capital costs may thus be imposed on the first property owner who wants to develop his or her property. This approach to infrastructure pricing tends to discourage infill and encourage large subdivisions so that developers do not subsidize later arrivals.<sup>90</sup>

Since publicly provided infrastructure services tend to use average-cost pricing for new extensions, the potential for subsidizing new development exists. For example, a city might determine that the initial capital cost of tapping into the city’s sewer system averages \$4,000 and assess that fee for every building unit, regardless of the individual building type.<sup>91</sup> In some cases, the actual cost to the city might exceed \$4,000,

<sup>89</sup> For a summary, see William H. Oakland and William A. Testa, “Does Business Development Raise Taxes?” *Federal Reserve Bank of Chicago Economic Perspectives* (March/April 1995), pp. 22-32.

<sup>90</sup> An excellent summary of this effect can be found in Tara Ellman, *Infill: The Cure for Sprawl?* Goldwater Institute Arizona Issue Analysis 146, August 1997, pp. 7-9. (<http://www.urbanfutures.org/p82897.html>)

<sup>91</sup> Schools represent another case where average-cost pricing is widely practiced. When a new subdivision is built—particularly single-family homes—new families are added to the community. Many of these families have school-age children, or young children that will be starting school in the coming years. If future increases in enrollment exceed current district capacity, the school board will ask the local community to approve a bond issue to build the new school.

but the builder or developer will not be charged for the full on-site costs, subsidizing the development through general revenues or user fees from existing users.<sup>92</sup>

Public-service costs, on the other hand, may also be overstated. A single-family home in Portland, Oregon will tap into about \$24,013 worth of public services when it is built, including utilities, water, sewer, roads, schools, and general government.<sup>93</sup> Concentrating solely on costs, however, mischaracterizes the public policy issue surrounding financing economic growth. Richard H. Carson, former planning director for Portland Metro (the regional planning agency), notes that most of these improvements are already paid by the developer as either on-site expenses or off-site charges levied by the local government.<sup>94</sup> Overall, Carson estimates that 59 percent of the total cost of extending public services to a new house in the Portland area is already paid for by the developer and, ultimately, the home owner.<sup>95</sup> Another 20 percent of the cost is funded by the local government, 13 percent is unfunded by the state (including schools), and about 8 percent is easily fundable through existing local government channels. In many cases, Carson notes, local governments choose to pay for these costs from general-tax revenues. Half of the 21 cities Carson analyzed did not use “all the legally allowed development charges” to generate revenues to offset the costs of growth.<sup>96</sup>

Marginal-cost pricing is typically used among privately provided services and independent public utilities to ensure costs are fully allocated to consumers using the service. Prices for new water extensions are set based on the cost of each new project, not a citywide average. In the case of a new subdivision, owners of new homes would pay the cost of providing a new elementary school. This means the marginal cost of extending the service is assessed against the user, not all citizens irrespective of whether they will use the new service. Capital costs and other costs such as debt are incorporated into the price of the service.

The fear that development will not pay its way has prompted many citizen groups and public officials to impose growth controls, moratoria on new building permits, or otherwise limit new development. Indeed, policy recommendations advocating “compact development”—putting new homes and businesses on smaller lots and land areas—is driven by the belief that reducing overall government costs should be a primary driver of land-use policy.

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The bonds will be paid by all families in the district, not the neighborhood or new families creating the demand for new facilities.

<sup>92</sup> In some cases, the subsidy goes the other way: local governments charge impact fees in excess of actual costs to pay for off-site items and infrastructure. One study, for example, identified more than 22 categories of facilities and activities that could legally be financed through impact fees. Most reflect political goals—public art, low-income housing, mass transit, historical preservation, day-care facilities—rather than facilities and traditional public goods such as roads, sewers, public schools. See Dennis H. Ross and Scott Ian Thorpe, “Impact Fees: Practical Guide for Calculation and Implementation,” *Journal of Urban Planning and Development*, vol. 18, no. 3 (September 1992), pp. 106-18.

<sup>93</sup> Carson, *Paying for Our Growth in Oregon*.

<sup>94</sup> *Ibid.*

<sup>95</sup> *Ibid.*

<sup>96</sup> *Ibid.* The solution, however, is to change the way local governments finance public services, not restrict growth to minimize local government costs. Minimizing costs tends to trivialize the benefits of growth such as housing diversity and choice, higher incomes, and diverse work opportunities. This is discussed more fully in the concluding section of this report.



### Should Residential Development Pay Its Way?

“Low- and mid-price single-family housing generally has a negative fiscal impact,” reports a recent study from Purdue University’s Department of Agricultural Economics.<sup>97</sup> The study examined four residential developments in an unincorporated section of Tippecanoe County in Indiana. One development consisted of expensive homes (\$327,678 per home), two developments were mid-priced (\$141,896 and \$90,358 per home), and the fourth was a mobile-home park (\$17,554 per home). With the exception of the mobile home park, the subdivisions were relatively small: 46 housing units in the high-income development, 52 and 66 units in the mid-priced development, and 377 in the mobile-home park. Each of the subdivisions created a net fiscal deficit for at least one level of local government (see table below).

Annual Fiscal Impact for Home in Indiana				
	High-priced	Mid-priced#1	Mid-priced #2	Mobile home
County government	-\$20,000 to +\$90,000	-\$19,000 to +\$8,000	-\$9,000 to -\$20,000	-\$45,000 to -\$120,000
Local schools	+40,000 to +\$50,000	+\$3,800 to -\$8,200	-\$5,100 to -\$17,000	-\$21,000 to \$49,000
Township government	-\$130 to -\$500	\$230 to -\$470	-\$340 to -\$570	-\$1,500 to -\$2,500

At first glance, these results make a strong case for restricting new residential development. This conclusion, however, is misleading. Local governments have to balance their budgets. If new residential development does not directly pay its way, city costs, some portion of which are fixed costs that do not vary with population size, have to be covered from other sources. One obvious source is business. Commercial and industrial properties generate revenues that can offset shortfalls in other areas, particularly schools. State governments also provide revenues to local governments, particularly for infrastructure and school-related expenditures. A third source of revenues is current or previous residents.

Requiring residential development to “pay-its-way” involves important trade-offs concerning who should pay for local public services and in what amounts. Local communities determine tax rates and “pricing” policies for services. A city or county, for example, could charge the full cost of providing services that are site specific. New subdivisions might include the cost of building a new school, incorporating parks and open space, tap-in fees for sewer and water rather than relying on subsidies from the business sector or current residents, avoiding infrastructure spending deficits.

Requiring all development to pay its own way also has equity implications for the community. If land-use plans were redesigned only to allow housing that fully pays its way using marginal-cost pricing, only high-end residential developments would be accommodated in local plans and zoning codes. In the Indiana case, housing in rural areas would be reserved for families with incomes who can afford homes (and lots) worth \$300,000 or more. Middle- and low-income housing would be discouraged, creating a significant income wedge between those that could afford the new homes and those (principally low- and middle-income families) that could not.

<sup>97</sup> Larry DeBoer and Lei Zhou, “The Fiscal Impact of Residential Development in Unincorporated Wabash Township,” Department of Agricultural Economics, Purdue University, West Lafayette, Indiana, October 1997, unpublished paper. ([Http://www.agecon.purdue.edu/crd/localgov/essays/wabashfia.htm](http://www.agecon.purdue.edu/crd/localgov/essays/wabashfia.htm)).

## B. Cost of Community Service Studies

Cost of Community Service (COCS) studies attempt to determine whether land development pays for itself. The American Farmland Trust promotes COCS studies as “an inexpensive, easy-to-understand way to determine the net fiscal contribution of different land uses to local budgets.”<sup>98</sup> Not surprisingly, these studies are becoming more frequent because they are easy to use and apply, and the results are easy to interpret.

COCS studies try to match the costs of services provided by local government to the revenues generated by land development and use. Most often, these revenues are generated from property taxes. For example, an office building uses public services such as water, sewers, roads, and fire and police protection. These services would be funded from the tax revenues and fees paid by the business.

Matching land uses to tax revenues is accomplished by first determining the pattern of land use in the local community. Often, this means determining how much land is devoted to residential use, commercial use, and agricultural use. Then, the costs of providing public services such as police, fire, water, and roads are determined. These costs are allocated to land uses based on their prevalence in the community.

These costs are compared to revenues generated through taxes that directly result from land development. For example, property taxes are included since they reflect changing land values due to development. Other revenues, such as sales taxes, would be allocated to different land uses based on where people live and estimates of how much of the tax revenue is generated locally. A federal grant for a road improvement would not be included because the origin of the money is not tied to property development. Similarly, user fees are not included because they are assumed to cover the marginal costs of the services and do not draw from general revenues. User fees, when set correctly, require users to pay their way.

Despite flaws and limitations (see box), dozens of COCS studies have been used across the nation to determine whether various land uses are cost effective. The results have often been used to justify growth controls, particularly on residential development.<sup>99</sup> Most COCS studies find that residential development fails to generate sufficient tax revenues to cover the costs of providing services to those areas. By implication, this means that other kinds of development—commercial, industrial, and agricultural—subsidize housing.

Recently, the American Farmland Trust reviewed the results of 40 COCS in 11 states.<sup>100</sup> Twelve of these studies (30 percent) were performed by the American Farmland Trust, and 11 (27.5 percent) were performed by the Southern New England Forest Consortium.

For every dollar raised in revenue, according to these studies, farmland required expenditures of 31 cents (Figure 6)<sup>101</sup>. Commercial and industrial property were even more cost effective: just 29 cents were spent on

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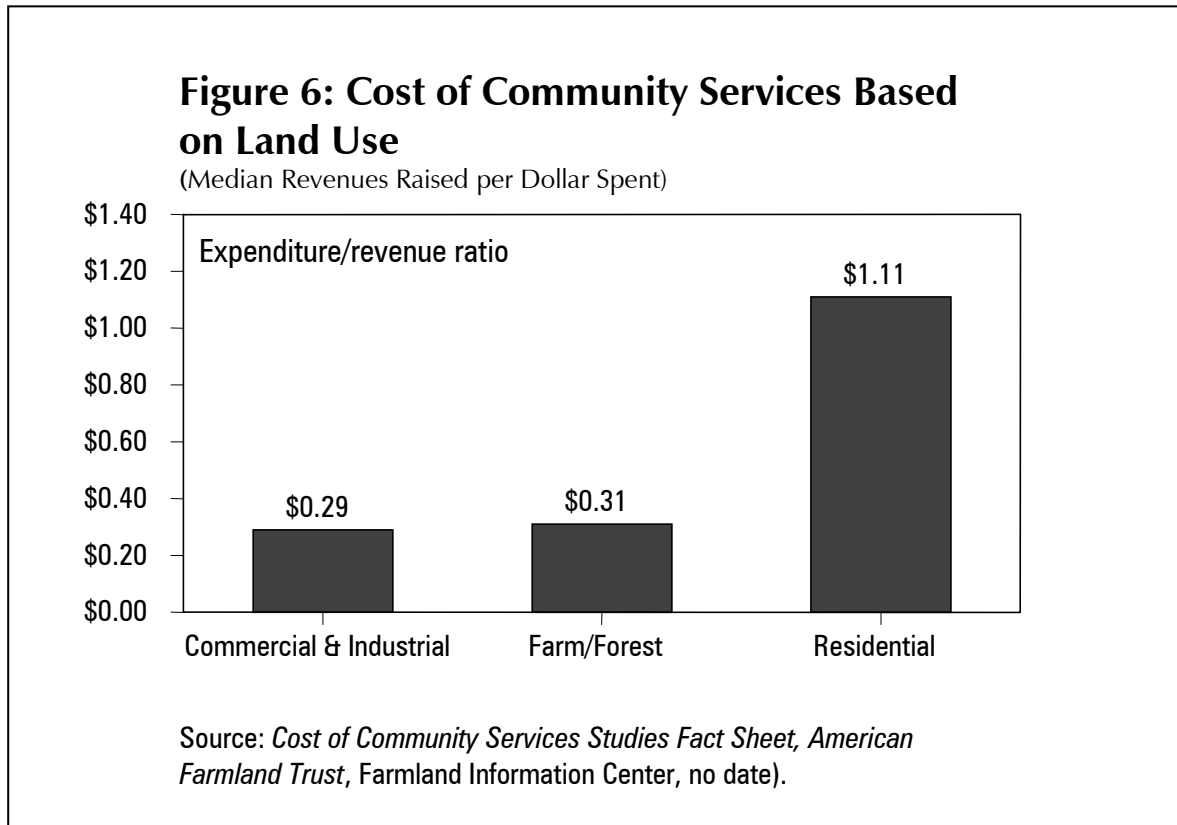
<sup>98</sup> *Cost of Community Services Studies Fact Sheet*, American Farmland Trust, Farmland Information Center, no date.

<sup>99</sup> One report by the American Farmland Trust, however, provides the following disclaimer: “COCS studies are not predictive and do not judge the overall public good or long-term merits of any land use or taxing structure.” See Julia Freedgood, *Farmland Pays its Way: A Review of Cost of Community Services Studies*, American Farmland Trust.

<sup>100</sup> *Cost of Community Services Studies Fact Sheet*. The states and the number of studies in each state were Connecticut (5), Maine (1), Maryland (2), Massachusetts (8), Minnesota (3), New York (11), Ohio (2), Pennsylvania (3), Rhode Island (3), Virginia (1), and Wisconsin (1).

<sup>101</sup> *Ibid.*

public services for every dollar raised in revenues.<sup>102</sup> Residential property was a net drain on local governments, requiring spending \$1.11 for every dollar in revenues raised.<sup>103</sup>



Thus, while farm, forest, and open lands generate more revenues than expenditures, COCS studies find that “residential land uses . . . are a net drain on municipal coffers: it costs local governments more to provide services to homeowners than residential landowners pay in property taxes.”<sup>104</sup> More importantly, from the American Farmland Trust’s perspective, “in every community studied, farmland has generated a fiscal surplus to help offset the shortfall created by residential demand for public services.”<sup>105</sup>

### C. Agriculture and the Cost of Community Services

The ratio of revenues to expenses is just one element of the broader issue of whether development pays its way. For example, a COCS study in Michigan focused on Scio Township, a largely rural area of Washtenaw County. Washtenaw County is a rapidly urbanizing area that contains Ann Arbor and the University of

<sup>102</sup> Ibid.

<sup>103</sup> Ibid.

<sup>104</sup> Ibid. Since COCS studies examine all revenues and attempt to allocate them based on land use, they allocate other revenues such as sales taxes based on population or property ratios (e.g., proportion of residents living on farms, proportion of property developed as commercial, etc.) when appropriate.

<sup>105</sup> Ibid.

Michigan.<sup>106</sup> Readers and policymakers are left with the impression from this COCS study, as in other studies, that agriculture pays for itself and should be encouraged over other land uses, particularly residential land uses. Yet, agriculture represents only 1.4 percent of the township's total revenues from general taxes on land uses (Figure 7). Agriculture generated \$203,532<sup>107</sup> while commercial and industrial property generated \$5 million, and residential property generated \$9 million.

### Limitations of Cost of Community Service Studies

Several problems emerge if COCS studies are used to evaluate the cost effectiveness of different types of land development. These problems limit their applicability to developing and using realistic policy recommendations. Among the more important limitations are:

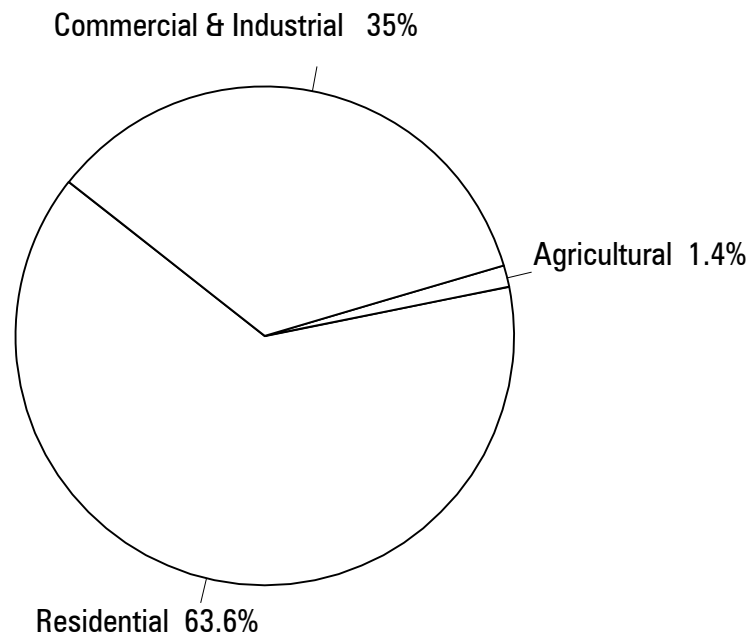
- *COCS studies are static and do not incorporate the dynamics of the land market.* They are "snapshots" of a community and cannot be used to infer fiscal capacity from one year to the next or over a longer period of time.
- *COCS studies ignore nonland-use based revenue sources.* Since a COCS study attempts to determine how much revenue is generated by a specific land use, revenue sources external to land use, such as state or federal funds, are excluded. This becomes problematic when the size of a community may impact future revenue from public and nonpublic sources for specific projects such as parks and recreational activities.
- *COCS studies are not grounded in a concept of development.* Since they are intended to provide a simple way to account for the flow of funds to and from specific land uses, these studies ignore synergistic elements that are natural parts of the development process. As communities grow, certain industries and businesses may be attracted to the community that may increase future revenue flows. A growing residential community provides a market for future businesses. As infill occurs, revenues are generated that compensate for deficiencies in other land-use categories.
- *COCS studies ignore alternative service delivery possibilities.* A COCS study presumes that the current system of government and mix of services provided now will also be provided by the local government in the future. Alternative ways to deliver services (i.e., through private providers) or potential cost-saving management techniques (i.e., competitive bidding) could bring costs in line with revenues and alter the fiscal position of land uses.
- *COCS studies treat land uses as independent.* The studies separate land into broad categories—agricultural, residential, commercial, industrial—and ignore the interdependencies of uses. Interdependencies of land uses are not factored in even though a mix of uses is necessary for sustainable economic growth and development. In addition, these studies often presume that

<sup>106</sup> Christopher A. Arend, Laura Priedeman Crane, et al. *Southeast Michigan Agricultural Land Preservation Project*, University of Michigan, School of Natural Resources and Environment, April 1996. The analysis was prepared as a graduate student research project in the School of Natural Resources and Environment at the University of Michigan. The study was later published by the Potawatomi Land Trust. See Laura Crane, Michelle Manion, and Karl Spiecher, *A Cost of Community Services Study of Scio Township*, Potawatomi Land Trust, July 1996. References to the COCS study in this policy report are to the University of Michigan study which also included an analysis of the agricultural industry and infrastructure in Washtenaw County.

<sup>107</sup> *Ibid.*, Table 11-9, p. 119.

land uses must be separate; mixed uses such as those found in older and smaller downtown areas do not fit well into the methodology.

**Figure 7: Total Revenues Generated by Land Use:  
Scio Township, Washtenaw County, Michigan**



Source: Christopher A. Arend, Laura Priedeman Crane et al. *Southeast Michigan Agricultural Land Preservation Project*, University of Michigan, School of Natural Resources and Environment, April 1996, Table 11-9, p. 119.

Agriculture's ratio of public revenues to expenses is due to the particular nature of the industry: farms use a lot of land and require limited publicly provided services such as roads.<sup>108</sup> Similarly, an acre of privately owned vacant land would generate tax revenues and require virtually nothing in local public services. The fiscal ratios are an artifact of how they are calculated. If the fiscal impact of the farm house was the unit of analysis, rather than the acre of land used for a particular purpose, farm houses would likely generate similar net drains on local government budgets as other residential uses if they were required to tap into public sewer and water systems and the costs of educating children were included.

<sup>108</sup> Farms and farmers may receive subsidies in other ways. Water may be provided by the county, and numerous states allow farmland to be assessed at lower rates than non-farmland for tax purposes.

Similarly, residential development using the COCS analysis generated net fiscal benefits when schools were excluded and the analysis focused solely on noneducation public services. In most states, school districts are independent governmental units and have independent taxing authority. District boundaries do not necessarily conform to township or municipal boundaries. Thus, using schools to evaluate the revenue impacts on township government is inappropriate.<sup>109</sup> In some states, where schools are financed from state sources, new schools may be a budget liability of the *state government*, not the local government.<sup>110</sup>

If local policymakers were attempting to determine local land-use policy based on the tax and spending impacts estimated using COCS studies, they would discourage residential development and encourage agricultural, commercial, and industrial uses. An argument even could be made that housing should not be allowed on farms since it would cost more to service them with infrastructure than they would generate in revenues. In addition, if land-use decisions were made purely on net fiscal benefits, Scio Township should reserve all its land for commercial and industrial uses. This, of course, would require commuting by workers who would travel into Scio Township from other parts of the county or neighboring counties. This approach to land use would encourage sprawl-like development patterns in other townships and nearby counties.

The push to preserve farmland and limit residential development is driven in part by the belief that *low-density* residential development is inefficient compared to *high-density* residential development. To evaluate this claim, community service studies must decompose residential land further than the broad classifications typically reported. The Scio Township COCS study provides little useful insight into the cost of public services in more- versus less-dense land developments.

## D. Compact Development

One of the most-compelling arguments for limiting growth is provided by proponents of compact development. Using an approach pioneered by researchers at Rutgers University, compact-development proponents asked a simple but very important question: how would infrastructure and land costs be affected by redirecting urban development into smaller lots, clustered closer together? Houses closer together, they suggest, should reduce infrastructure costs since shorter roads, sewer lines, and water lines would be built. In addition, less land would be used for homes, leaving a larger share for forest and open space. More controversially, the authors argued that housing costs would *fall* under compact development because smaller lots would reduce land and infrastructure costs.

Despite its potential, compact development is unlikely to achieve many of the results its proponents claim. Infrastructure that provides benefits to consumers is not necessarily a net drain on local government. The potential benefits of compact development also depend on consistent, coordinated statewide implementation. The statewide application of compact development is necessary, proponents argue, because the solution is

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<sup>109</sup> Gary Wolfram, *An Analysis of 'A Cost of Community Services Study of Scio Township'*, Hillsdale Policy Group, Ltd., May 1997, pp. 2-4. The implications of including education in the analysis are significant. Excluding schools in the Michigan study, residential land uses would have generated \$1.7 million and incurred spending of just \$857,800. Residential development's expenditure/revenue ratio was 0.49, suggesting it had positive net fiscal impacts. Including the schools tipped the scales against residential development. While the study made adjustments for statewide school finance reform in 1994, it failed to recognize that education is provided through a different governmental authority with independent financing and provision requirements. The state, rather than local school districts, is now the primary financier of public education, changing significantly the cost and revenue environment in which schools operate.

<sup>110</sup> See Carson, *Paying for Our Growth in Oregon*.

considered “regional” and must supercede parochial local government interests that favor low-density residential development to conserve land.

Several factors, grounded in the experience of states struggling with attempts to implement compact development schemes suggest this approach will have limited impact on land conservation or meet compact development goals.

### ***1. Land Saving Benefits are Modest***

Compact development will likely achieve modest reductions in overall land consumption. Compact development slows the rate of increase; it does not stop land development. The effects of slowing land development, if they appear, can vary widely from state to state and even location to location.

In Michigan, for example, one of the three states where this methodological approach has been applied, land consumption is projected to be 12.7 percent lower under the more “efficient” compact development scenario.<sup>111</sup> This reduction occurs over a 25-year period. Annualized, compact development reduces the projected rate of land consumption by about 0.5 percent per year, or 5 percent per decade. If these savings were achieved statewide, compact development would slow the pace of urbanization from 12.4 percent to 11.8 percent per decade (making the tenuous assumption that past trends will continue) (Figure 8).<sup>112</sup> In New Jersey, the results were expected to be more significant: urbanization was occurring at a rate of 14.6 percent per decade.<sup>113</sup> This rate would have slowed to 8.3 percent. Agricultural land loss would have been reduced from 2.8 percent per decade to 2.6 percent per decade in Michigan and from 6.2 percent to 4.4 percent in New Jersey (Figure 9).

While the experiences of New Jersey appear more favorable, the case of Michigan clearly cautions against forecasts of dramatic land-consumption benefits through compact development. Moreover, the forecast for New Jersey might have been achievable if all cities participated in the state plan. In fact, few cities are participating (see below). Thus, any slowdown in urbanization now experienced in New Jersey is likely the result of natural market forces than the implementation of the state plan.

### ***2. Infrastructure Benefits May Not Materialize***

Second, infrastructure cost savings may not materialize. Compact development proponents use a static view of spending and potential savings. They presume costs for infrastructure such as road extensions will remain the same over the 25-year period and other factors (e.g., local capacity limitations or changes in technology) will not impact costs. In some cases, large-lot development could reduce infrastructure costs by using septic systems rather than expensive extensions of municipal sewer lines. Privatization of key infrastructure (e.g.,

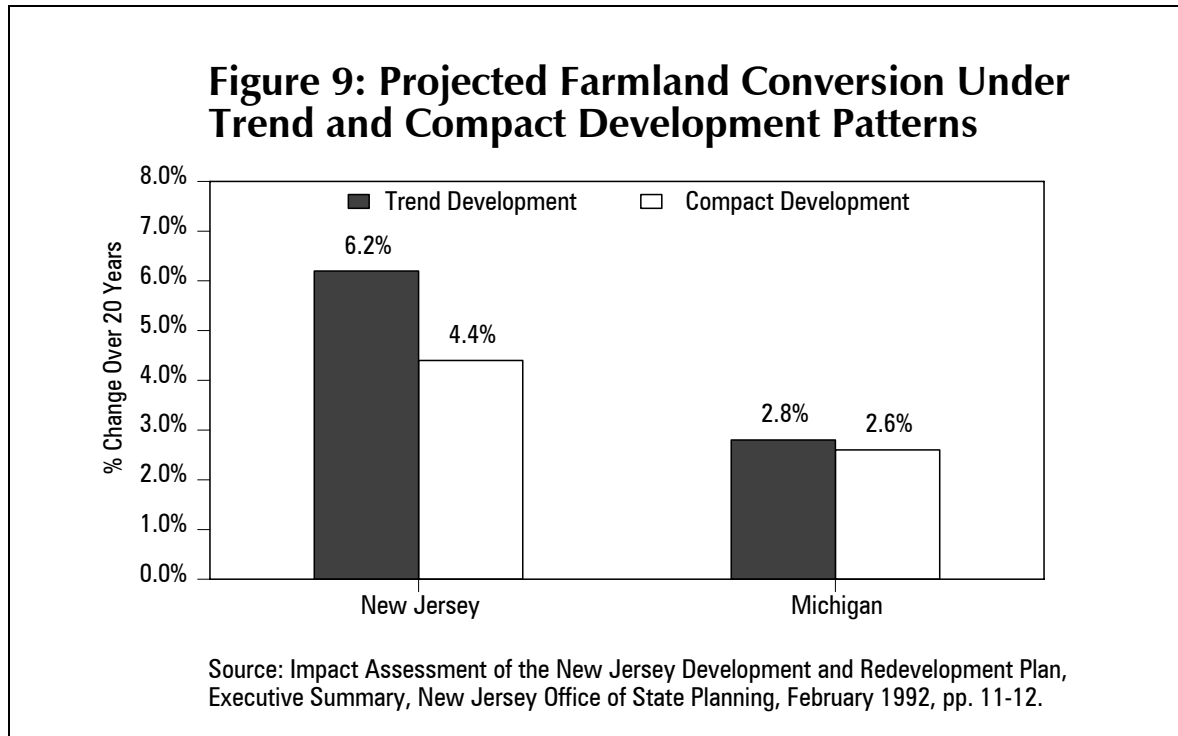
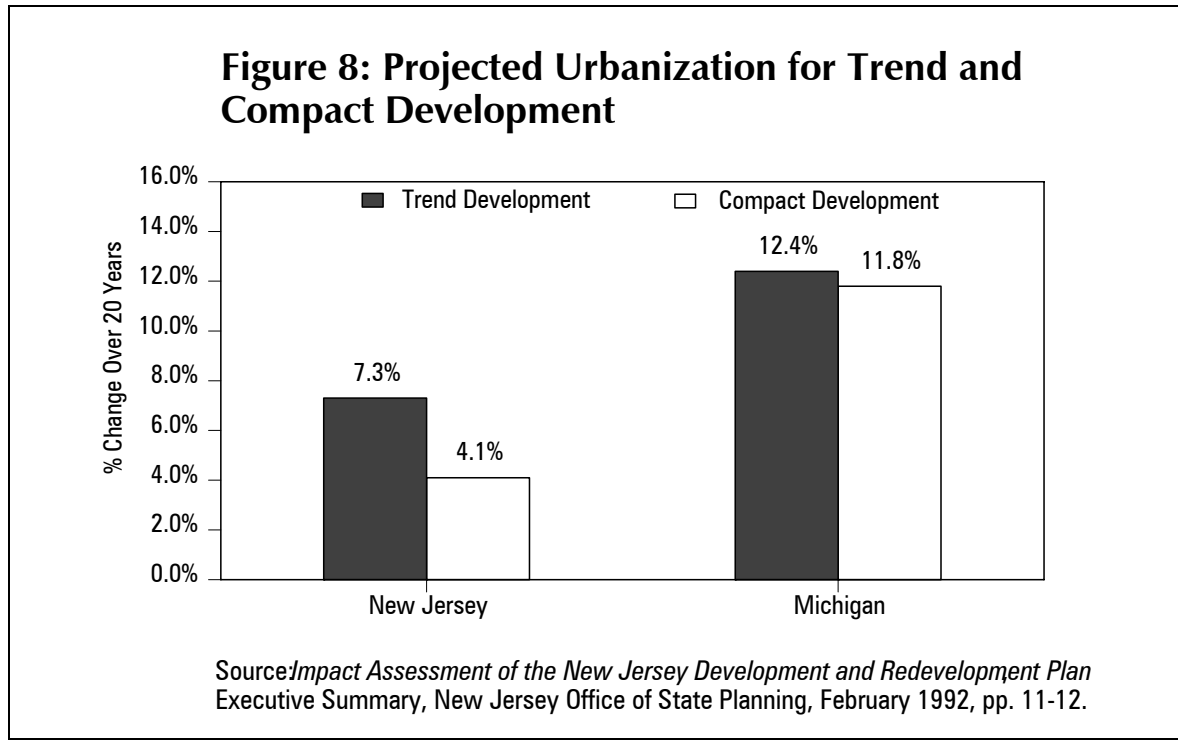
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<sup>111</sup> *Fiscal Impacts of Alternative Land Development Patterns in Michigan*, Final Report, Southeast Council of Governments, June 1997, p. I-25.

<sup>112</sup> From 1982 to 1992, the most recent years available, land in urban areas increased from 1,556,000 acres to 1,760,000 acres.

<sup>113</sup> *Impact Assessment of the New Jersey Development and Redevelopment Plan*, Executive Summary, New Jersey Office of State Planning, February 1992, pp. 11–12.

waters, sewer) could dramatically reduce fiscal liabilities<sup>114</sup> for local governments while ensuring full costs are charged for new development.



<sup>114</sup> See, for example, Kathy Neal, Patrick J. Maloney, Jonas A. Marson, and Tamer E. Francis, *Restructuring America's Water Industry: Comparing Investor-Owned and Government-Owned Water Systems*, Reason Foundation, Policy Study No. 200, January 1996; Holly June Stiefel, *Municipal Wastewater Treatment: Privatization and Compliance*, Reason Foundation, Policy Study No. 175, February 1994; John Hilke, *Competition in Government-Financed Services* (New York: Quorum Books, 1992).



Compact development studies tend to reduce community development to an exercise in reducing infrastructure costs. Infrastructure costs are one component of housing and the quality of a community, but not the only or even primary component. If families are willing to pay the full costs of their home—including higher infrastructure costs—the market accommodates this diversity. Compact development reduces housing choice by limiting larger lot homes from the real-estate market. “Many households,” note urban planners Alan Altshuler and Jose A. Gomez-Ibanez, “would be willing to pay the modest increases in road and utility costs to gain the larger private backyards and more open space of the low-density neighborhood.”<sup>115</sup>

### 3. Real Housing Prices will Likely Rise

Real housing cost savings are unlikely to materialize either. The authors of the New Jersey and Michigan studies acknowledge that most of the work by independent scholars shows that growth controls increase housing prices.<sup>116</sup> Growth controls often limit the number of houses while demand for housing continues to increase. This demand/supply mismatch increases the price of housing. On the other hand, the Rutgers University researchers argue, if the number of housing units increases, or at least stays the same, housing price inflation will not occur. Housing prices may even fall, they predict, because infrastructure and land costs will be lower.

This reasoning is flawed for at least two reasons. First, housing costs will be determined in the real-estate market by consumers *and* developers. Construction costs are not the only factors that determine housing prices. While infrastructure costs may fall, these savings will not necessarily be passed on to consumers if the demand for housing increases, particularly in high-growth areas or “good” neighborhoods. This is becoming increasingly evident when the effects of development fees are examined.<sup>117</sup> Where demand is high, developers might experience higher profit margins (therefore encouraging more development in those areas).

More importantly, the authors assume that the amount of land is not important to a consumer’s decision to buy a house.<sup>118</sup> The authors view larger lots as a pure cost without benefits. In essence, families will not care whether they live in a house on one-eighth acre or a house on one-half acre. While the authors kept the *number* of homes in their cost analysis the same, the *quality* of the housing changed significantly when they reduced the lot size. Based on current development trends, most families prefer detached, single-family homes on separate lots with a yard. Compact development could reduce the quality of life and standard of living for families by resulting in equal or higher housing costs for lower-quality units. For example, suppose

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<sup>115</sup> Alan A. Altshuler and Jose A. Gomez-Ibanez, *Regulation for Revenue: the Political Economy of Land Use Exactions* (Washington, D.C.: Brookings Institution, 1993), p. 70.

<sup>116</sup> See *Fiscal Impacts of Alternative Land Development Patterns in Michigan*, Final Report, p. I-25.

<sup>117</sup> Recent research on development fees has found that the degree fees are passed onto consumers depends on the strength of the market. In areas with high demand, developers can pass on almost all of the cost of development to consumers through higher prices. For example, see the discussion in Marla Dresch and Steven M. Sheffrin, *Who Pays for Development Fees and Exactions?* Public Policy Institute of California, 1997.

<sup>118</sup> This is a surprisingly consistent omission throughout the SEMCOG study. The analysis and study design largely ignore real-estate markets and consumer preferences for particular types of housing and neighborhoods. Urban development is conceived solely as a political goal. “An important aspect of each community profile is identification of the goals that compact growth would be intended to achieve for that community.” *Fiscal Impacts of Alternative Land Development Impacts in Michigan*, p. III-3. The study authors interviewed planners and local public officials to determine key development issues, current land-use development patterns, and the future forms of current development and compact growth. The authors did not use community attitude surveys, interviews with developers, or market research of household preferences to identify goals or the beneficial characteristics of community.

the state- or local growth-management program limits development to quarter-acre lots (four units per acre) while current trends subdivide land into half-acre lots. A 2,000 square-foot house on a quarter-acre lot is of lower quality than a 2,000 square-foot house on a half-acre lot for most people. Most families would pay less money for the home on the quarter-acre lot than the half-acre lot if the neighborhoods are exactly the same in every other aspect (e.g., proximity to schools and parks, road access, availability of retail stores, etc.). The negative effects of housing quality are heightened if new subdivisions do not dedicate additional land for open space.

For example, Maryland implemented “Smart Growth” legislation in 1997. The legislation requires the state to identify Priority Funding Areas, or PFAs, to guide state infrastructure spending. All existing communities qualify as a PFA, but the state uses housing density to determine whether to fund sewer, water, roads, and other infrastructure should be extended to new residential development. The density criteria, and hence qualifications for state funding, are calculated solely on the amount of land developed for residential purposes.<sup>119</sup> For undeveloped areas, Maryland requires a housing density of at least 3.5 units per acre to qualify for state funding as a PFA.

Mandated compact development also limits housing choices and thus opportunities. Choices about house and lot sizes are not independent of each other. Some families might prefer a bigger house on a smaller lot. Others might prefer a bigger lot for a smaller house. Reducing housing choices to building characteristics such as floor area, number of bedrooms, number of bathrooms, or kitchen size ignores the value many families place on private open space (yards).

#### **4. Complete Implementation is Unlikely**

Compact development as a statewide planning tool also promises more than it can deliver. First, state plans are not easily implemented. New Jersey implemented a comprehensive state land-use plan in 1992. The plan used compact development to steer new development into existing urban centers and suburbs using a growth-corridor or growth-node approach. In New Jersey, 36 cities and towns have applied for designation as a “center,” a status that would permit them to tap into infrastructure funds after their compliance with the state plan is verified.<sup>120</sup> Five years after the first plan was adopted and 12 years after the New Jersey State Planning Act was signed into law, 11.1 percent of the state’s cities, towns, and villages are participating.<sup>121</sup> These cities and towns make up 16.5 percent of New Jersey’s population.<sup>122</sup> Almost two-thirds of the state’s population lives in the largest cities: Newark (270,607), Jersey City (229,108), Paterson (148,769), Elizabeth (110,198), and Camden (85,339), not the suburban areas that are the targeted for compact development. Thus, the state plan is reaching a very small segment of the state’s suburban and newly urbanizing populations.

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<sup>119</sup> See *Smart Growth: Designating Priority Funding Areas*, Maryland Office of Planning, November 1997, especially Chapter Two.

<sup>120</sup> New Jersey State Planning Commission and the New Jersey Office of State Planning, *State Planning Notes*, vol. 5, no. 1 (Spring/Summer 1998), p. 10.

<sup>121</sup> *Ibid.* Forty-one cities, towns, boroughs, and places have applied for and received “center” status from the State Planning Commission. The Census Bureau recognizes 323 cities, towns, and cities as “places.” Five of the areas designated as centers could not be identified by the author as Census Bureau-designated places.

<sup>122</sup> 1995 census estimates. Population Estimates Program, Population Division, U.S. Bureau of the Census, Washington, D.C. ([http://www.census.gov/population/estimates/metro-city/scts96/sc96t\\_NJ.txt](http://www.census.gov/population/estimates/metro-city/scts96/sc96t_NJ.txt))

Examining the types of suburban and rural communities participating in the state plan is also instructive. Several are communities with unique characteristics and attributes. Four island communities banded together to form “The Wildwoods.”<sup>123</sup> Known as a summer beach destination for more than 100 years, the communities petitioned to become a state-designated center so they could address revitalization on an island-wide basis. The Township of Washington in Mercer County, New Jersey, is completing a 13-year process of developing a regional Town Center.<sup>124</sup> The Town Center is the first New Jersey attempt to implement neotraditional design concepts on an integrated scale. Given the voluntary nature of the New Jersey state-planning system, the plan is unlikely to have a wide impact on growth patterns in the near future.

## E. Conclusion

The question of public-service cost and efficiency is an important one for debates over suburbanization. If low-density residential development were inefficient, an argument could be made for restricting it when the costs are borne by taxpayers. The empirical evidence on infrastructure costs is mixed.<sup>125</sup> Even the Rutgers studies, which represent some of the most-ambitious attempts to contain development through compact development, claim modest improvements over existing development trends. Moreover, these studies are fundamentally flawed because they ignore the benefits to families of living on larger lots.

While some infrastructure costs fall as density increases (e.g., street maintenance), other costs may increase. Cities provide more than just one public service. As densities increase, cities tend to get larger, and the level of general spending tends to rise (as well as tax rates).<sup>126</sup> Thus, while infrastructure costs may go down, administrative inefficiencies increase as cities get bigger and provide a broader array of noninfrastructure-related programs such as housing and welfare. The net impact is an increase in general government costs.<sup>127</sup>

A more important issue involves whether increases in infrastructure costs in and of themselves merit planning mandates for more compact development. Roads, sewers, storm water drainage, and water systems represent services to consumers. If consumers pay the full costs of providing the service (marginal-cost pricing), the service enhances community welfare. Residents are showing their preference for that type of housing and its incumbent services even when the full costs are fully disclosed and may be higher than services for other kinds of housing. In a nutshell, people (households) may rationally choose a more expensive item (houses on larger lots) if the product provides a service (neighborhood) they value. Families, for example, often choose to purchase more expensive mid-size cars such as the Ford Taurus over compact and subcompact cars such as the Ford Escort as their families mature and their driving preferences change.

The comments of Reid Ewing, a proponent of higher-density, compact development, are worth repeating: “Having said all this, it turns out that density may not be the most important land-use variable after all. Density largely pays for itself, in the sense that developers pay for on-site infrastructure and successive

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<sup>123</sup> *State Planning Notes*, p. 9.

<sup>124</sup> *Ibid.*

<sup>125</sup> For an interesting exchange and debate on this issue, see Peter Gordon and Harry W. Richardson, “Are Compact Cities a Desirable Planning Goal?” *Journal of the American Planning Association*, vol. 63, no. 1 (Winter 1997), pp. 99–100 (<http://www.urbanfutures.org/j56972.html>) and Ewing, “Is Los Angeles Style Sprawl Desirable?” p. 115–116.

<sup>126</sup> Reviews of this literature can be found in Staley, *Bigger is Not Better*, pp. 16–19 and Stephen Hayward, *Preserving the American Dream: The Facts about Suburban Communities and Housing Choice*, California Building Industry Association, September 1996.

<sup>127</sup> Staley, “Bigger is Not Better.”

property owners pay for public services through their property taxes.”<sup>128</sup> In addition, as communities develop commercial and industrial properties which typically follow residential development, sufficient cross-subsidization occurs to minimize negative fiscal impacts on local communities.<sup>129</sup>

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<sup>128</sup> Ewing, “Is Los Angeles Style Sprawl Desirable?” p. 115.

<sup>129</sup> Hayward, *Preserving the American Dream*, p. 6.

## Part 6

# Flight from the Big Cities

Concerns about the costs of suburbanization are, of course, broader than farmland loss and rising infrastructure costs. The decentralization of people and jobs also impacts existing communities and the quality of life for residents in old and new places. Low-density suburban development increases automobile “dependence,” which increases demand for roads and may increase pollution. Sprawl is also blamed for the decline of “big cities” and older, inner-ring suburbs. By making outmigration easier and cheaper, people have “abandoned” older urban centers in favor of newer suburban communities. Jobs followed the people, eroding the tax base and robbing neighborhoods of an energetic, engaged populace. “Freeways have subtracted homes and businesses from the city and dispersed millions of U.S. citizens and businesses to the suburbs,” notes Milwaukee Mayor John Norquist.<sup>130</sup> “These new roads have left in their wake vast wastelands” in New York City, Cleveland, St. Paul, and numerous other cities.<sup>131</sup> Vice President Al Gore echoed this interpretation before an audience at the Brookings Institution:

*In the last fifty years, we’ve built flat, not tall: because land is cheaper the further out it lies, new office buildings, roads, and malls go up farther and farther out, lengthening commutes and adding to pollution. This outward stretch leaves a vacuum in the cities and suburbs which sucks away jobs, businesses, homes, and hope; as people stop walking in downtown areas, the vacuum is filled up fast with crime, drugs, and danger.<sup>132</sup>*

These arguments tend to trivialize several important complicating elements of urban revitalization. Redeveloping older, inner-city cores will take much more than using public policy to deter people from leaving.

## A. Understanding Residential Migration

Urban development and redevelopment are influenced by a number of “push” and “pull” factors. Pull factors are the characteristics of a community that attract people to a city or community. The possibility of a larger house on a plot of land might attract, or “pull,” someone to a suburb or rural town. The proximity to cultural and entertainment events such as professional sports or the opera might pull others into downtown areas. Providing the kinds of neighborhoods and housing opportunities people want is critical for developing,

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<sup>130</sup> John Norquist, *The Wealth of Cities: Revitalizing the Centers of American Life* (Reading, Mass.: Addison-Wesley, 1998), p. 154.

<sup>131</sup> Ibid.

<sup>132</sup> Remarks made at September 2, 1998.

### Keys Elements to Revitalizing Cities

- Public safety
- Access to quality education
- Competitive tax and regulatory climate
- Diverse and contemporary housing opportunities
- Efficient, well-developed and maintained infrastructure

redeveloping, and rejuvenating cities of all sizes. Importantly, large cities have a number of features that attract businesses and people: roads, cultural activities, diverse and sometimes inexpensive housing opportunities, and easy access to mass transit.

Equally important, however, are the push factors. Many cities suffer from poorly functioning school systems, high tax rates, anticompetitive regulations, and a deteriorating housing stock. Upper- and middle-income households tend to be the most sensitive to these push factors because they have the wealth and income to re-locate. Rather than fight city hall, they simply move to a friendlier one and help build a new community. Middle-class migration out from the central cities is substantial. In a detailed analysis of 12 big cities, researchers at the University of North Carolina and Carnegie Mellon University found higher-income households moved out of the city at about twice the rate of similar households moving in.<sup>133</sup> In cities such as Detroit and Cleveland, five households moved out for every one that moved in, prompting the authors to conclude that “a widespread back-to-the-city movement is not likely in the foreseeable future.”<sup>134</sup> Urban planners David Varady and Jeffrey Raffel found that suburban homebuyers were influenced mainly by things that affected their family: larger houses, more open space, efficient government, and quality schools.<sup>135</sup>

Varady and Raffel found that, for many, the poor quality of central city schools was *the* driving factor in moving out of the city. Education issues were particularly important for working-class families. Living in the city was actually preferred by neighborhood-oriented, middle-income families. Families that believed the quality of education in the cities was on par with the quality of education in the suburbs were more likely to stay in the city. Those that did not, moved out. Families that stayed in the city escape poorly performing public schools by sending their children to private schools. Not surprisingly, Varady and Raffel found that families with a child in parochial schools tended to stay in the city.<sup>136</sup>

Housing is another area where many cities are not competitive. “City homes need the amenities people want,” notes Mayor Norquist.<sup>137</sup> In a recent tour of suburban homes, the mayor was impressed with how suburban homes were designed. Suburban “homes were the first in the Milwaukee area with work space in the middle of kitchens, wood floors in kitchens, solariums opening off kitchens, exercise rooms with floor-to-ceiling windows, and large, walk-in closets. Thirty years ago developers featured master bedrooms. Now they feature master bathrooms.”<sup>138</sup>

<sup>133</sup> John D. Kasarda, Stephen J. Appold, Stuart H. Sweeney and Elaine Sieff, “Central-City and Suburban Migration Patterns: Is a Turnaround on the Horizon?” *Housing Policy Debate*, vol. 8, no. 2 (1997), pp. 307-358.

<sup>134</sup> *Ibid.*

<sup>135</sup> Varady and Raffel, *Selling Cities*, especially chapters 4 and 5.

<sup>136</sup> These results were confirmed by a recent survey of families moving out of the city of Baltimore to suburban counties by the Maryland-based Calvert Institute. More than half of the families with children that had moved to the suburbs might have stayed in Baltimore if higher quality schools existed for their children. Douglas P. Munro, “Reforming the Schools to Save the City, Part II,” *Calvert Issue Brief*, vol. 1, no. 2 (August 1997). <http://www.calvertinstitute.org/issu/9710/cib9710tc.html>.

<sup>137</sup> Norquist, *The Wealth of Cities*, p. 196.

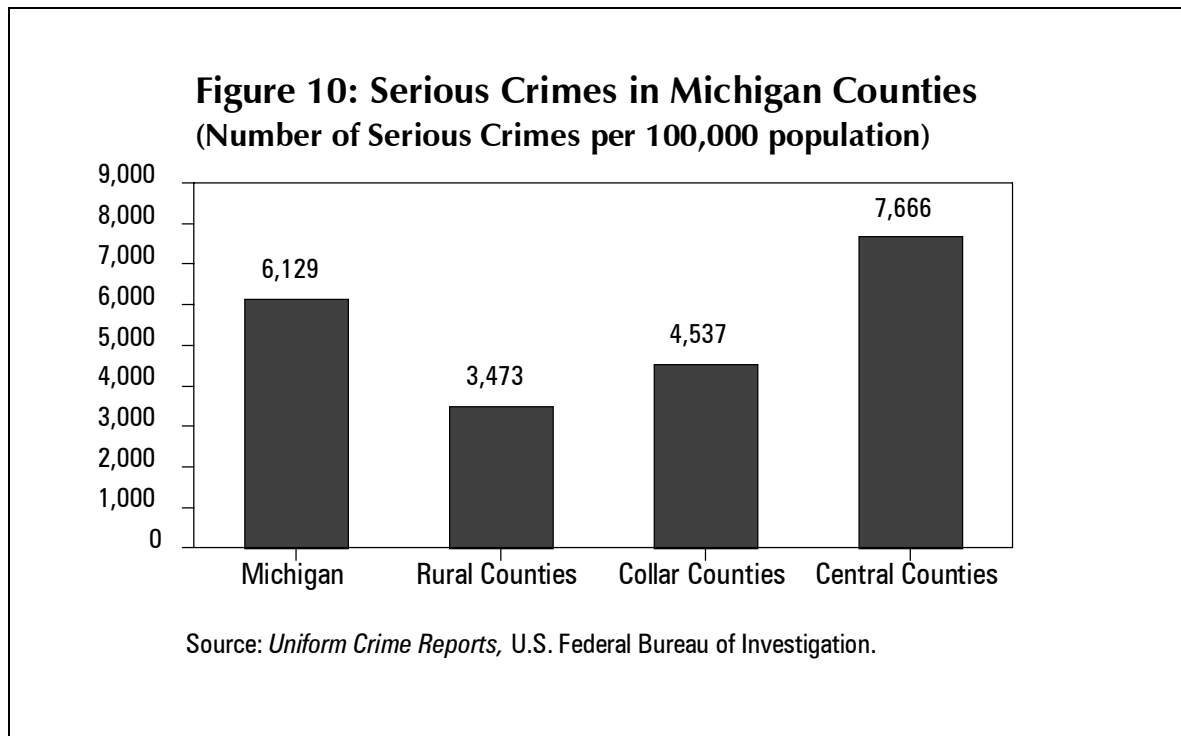
<sup>138</sup> *Ibid.*

Concerns about crime and public safety also drive many people from cities. The number of serious crimes increases as people move closer to central cities. On average, metropolitan areas have crime rates more than double rural areas.<sup>139</sup> In 1994, the crime rate for the nation averaged 5,374 violent and property crimes per 100,000 person. A comparison of crime rates in 72 cities with populations over 150,000 by the U.S. Federal Bureau of Investigation revealed that all except San Jose and Virginia Beach had crime rates exceeding the national average. In 18 cases, crime rates in cities were more than double the national average (Table 9). Some of these cities are commonly cited as examples of high-crime locations (e.g., Miami, Washington, D.C., Detroit, Newark, and Baltimore). Other cities—Seattle, Portland, Tampa, Oklahoma City—are not. In Michigan, crime rates were broken down by county to provide a better illustration of the relationship between crime and urbanization. The number of serious crimes per person is almost double in central-city counties compared to rural counties and almost 70 percent higher than in collar counties (Figure 10).

City	Total	Violent	Property
Tampa	17,481	3,482	13,998
Miami	17,177	3,414	13,763
St. Louis (MO)	16,351	3,751	12,600
Atlanta	16,119	3,571	12,548
Baton Rouge (LA)	14,052	2,450	11,603
Newark	13,827	3,841	9,987
Baltimore	12,552	2,834	9,718
Kansas City (MO)	12,551	2,435	10,116
Tuscon	12,255	1,106	11,149
Birmingham (AL)	12,192	2,445	9,747
Fresno (CA)	12,041	1,620	10,421
Oklahoma City	12,005	1,403	10,602
Detroit	11,917	2,687	9,230
Portland (OR)	11,816	1,902	9,914
Minneapolis	11,617	1,908	9,259
Washington, D.C.	11,078	2,663	8,415
Seattle	10,718	1,210	9,508
Oakland (CA)	10,633	2,194	8,439
U.S. Average	5,374	716	4,658
Metropolitan Area Avg.	5,894	812	5,082
Rural Area Avg.	2,034	237	1,797

Source: Uniform Crime Reports, U.S. Federal Bureau of Investigation.

<sup>139</sup> Total crimes per 100,000 population for 1994, U.S. Federal Bureau of Investigation. The national crime rate was 5,374 crimes per 100,000 persons. The rate was 5,894 for metropolitan areas, 5,318 for non-metropolitan area cities, and 2,034 for rural areas. The range is wider for violent crime rates. Metropolitan areas have crime rates of 812 per 100,000 persons while rural area crime rates were 237 per 100,000 persons. See also Ronald D. Utt, *What to Do About the Cities*, Heritage Foundation Backgrounder No. 1216, September 1, 1998, Table 3, p. 14.



## B. The Case of Detroit

Detroit, the nation's tenth-largest city, is a case in point. From 1980 to 1994, the city of Detroit lost 17.5 percent of its population while its immediate suburbs grew by 4.1 percent (130,000 people). Thus, Detroit's share of the region's population fell from 27.4 percent in 1980 to 23.0 percent in 1994.

Detroit's own public policies make it difficult to retain businesses and people. While the number of city employees fell from 22,000 to 19,000 from 1980 to 1991, the number of city employees per 10,000 residents increased 3.3 percent.<sup>140</sup> Thus, a smaller residential and commercial tax base was supporting a larger government relative to its population.

At the same time, residential property tax rates are high, even for large cities. A comparison of 51 large U.S. cities by the Government of the District of Columbia found that Detroit ranked seventh highest, with an effective property tax rate 76 percent higher than the others in the comparison.<sup>141</sup> Detroit's tax burden is significantly higher than its neighboring suburbs.

Detroit is not the only Michigan city discouraging development because of high taxes and spending. A study of Michigan's 11 largest cities by the Mackinac Center for Public Policy found that while spending fell from

<sup>140</sup> U.S. Bureau of the Census, *City Employment*, series GE, No. 2, annual cited in *The American Almanac* (Statistical Abstract of the United States), Table 511, p. 325.

<sup>141</sup> Government of the District of Columbia, Department of Finance and Revenue, *Tax Rates and Tax Burdens in the District of Columbia: A Nationwide Comparison*, 1994 cited in *The American Almanac* (Statistical Abstract of the United States), Table 491, p. 311.



1980 to 1990, average spending still exceeded national averages for six of Michigan's 11 largest cities.<sup>142</sup> The authors found that growing cities had lower taxes and spending per capita than declining cities. "We believe," they concluded, "that the evidence shows that high taxes and spending are both a cause and consequence of urban decline."<sup>143</sup>

Taxes and higher spending are not the only hindrances to revitalizing Detroit and other big cities. Detroit's violent and property crime rates are surpassed only by Baltimore among the nation's largest 20 cities.<sup>144</sup> While recent charter-school initiatives have created a more-competitive education environment, most children in the public-school system have few high-quality education options.

Entrepreneurs are also faced with an array of regulatory obstacles and barriers, from licensing restrictions to highly politicized planning review of new projects. The Washington, D.C.-based Institute for Justice identified numerous obstacles to starting up relatively low-tech businesses in Detroit, including caps on the number of taxicabs, excessive licensing and education requirements for businesses such as child care and hairbraiding, and zoning rules that prohibit virtually any form of home-based business.<sup>145</sup> One new Detroit-based project required approval from 22 different "stakeholders," had to negotiate between the mayor and city council, and contended with inspectors that seemed to work at cross purposes.<sup>146</sup>

### C. Deregulating the Inner City

These obstacles can become formidable barriers to redevelopment. Some obstacles to urban development may be beyond the reach of big-city policymakers. Brownfield redevelopment is complicated by the fact that federal law creates substantial legal and financial risks for businesses and developers interested in redeveloping property if the property is a federal superfund site. The legal uncertainties surrounding liability for environmental contamination have spread to the states and cities, prompting more 30 states to enact programs explicitly designed to reduce the legal uncertainty surrounding brownfield sites and encourage environmental clean up.<sup>147</sup> Since central cities contain a larger share of brownfields,<sup>148</sup> reform at the federal and state levels are particularly important for central-city revitalization efforts.

Other federal policies encourage the development of vacant land in the suburbs rather than the redevelopment of land in existing cities. New home construction is encouraged by property-tax write-offs for interest and taxes and low-interest home loans. In the 1960s and 1970s, federal programs that subsidized new municipal water and sewer systems created the capacity to subsidize new housing development without full-cost pricing for these public services. User fees were used to cover annual operating costs. Since fixed-capital costs for facilities were not incorporated into the annual fee, user fees did not (and still do not) reflect

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<sup>142</sup> Stephen Moore and Dean Stansel, *A Prosperity Agenda for Michigan Cities*, Mackinac Center for Public Policy, November 1993, Table 4, p. 9.

<sup>143</sup> *Ibid.*, p. 13.

<sup>144</sup> U.S. Federal Bureau of Investigation, *Crime in the United States* cited in *The American Almanac* (Statistical Abstract of the United States), Table 313, p. 203.

<sup>145</sup> Dana Berliner, *How Detroit Drives Out Motor City Entrepreneurs*, Institute for Justice, no date.

<sup>146</sup> Jon Pepper, "Red Tape Stands in Way of Detroit Development," *Detroit News*, September 10, 1997.

<sup>147</sup> Volokh, Scarlett, and Bush, *Race to the Top*.

<sup>148</sup> Samuel R. Staley, "Environmental Policy and Urban Revitalization: The Role of Lender Liability," *Capital University Law Review*, vol. 25, no. 1 (1996), pp. 51–75.

the true costs of providing these public services. The interstate highway system also fueled suburban development, although these expenses were paid for through a gasoline tax paid by automobile users.

### Central-City Development Projects Also Receive Public Subsidies

Some critics of suburbanization argue that suburban growth results largely from public subsidies from federal, state, and local governments. Home mortgages subsidized through loan guarantees and low-interest rates spurred demand for new housing, the interstate highway system dramatically reduced transportation costs, and federal grants to local governments to install water and sewer systems are just a few of the more significant contributors to development. State and local governments also offer targeted tax incentives to lure companies into suburban and rural areas.

Big-city urban development projects also receive substantial subsidies. In Portland, Oregon, for example, the city is committing \$140 million to a high-density residential development in the city's River District.<sup>149</sup> The project, on prime land near the riverfront, will receive a new trolley system, road and sewer improvements, and parks. The project is expected to create enough housing to establish a neighborhood of 5,000 people on 34 acres.

Other cities have provided significant tax breaks and subsidies to developers and businesses to lure them into their downtown. Convention centers and sports stadiums are examples of economic-development projects that receive significant contributions and subsidies from city governments.

Local policy, including tax and spending policy, regulation, permitting, and local planning policy, influences numerous other areas. Indianapolis Mayor Stephen Goldsmith notes that the natural advantages of the big city—its diversity, culture, amenities, and architecture—are outweighed by “enormous artificial costs that have been placed on urban economies by bad government policy.”<sup>150</sup> Decades of poor policymaking have led to “high taxes, crumbling infrastructure, and stifling regulations” that create very real and significant barriers to investment.<sup>151</sup>

Today's mayors need creativity to overcome these barriers and work for long-term, structural reforms. Goldsmith used competitive bidding for more than 70 services to generate \$230 million in savings over five years, help reduce the city's budget by 7 percent, and reduce the nonpublic-safety workforce by 40 percent.<sup>152</sup> “Cities must resolve their own structural problems,” writes Goldsmith in response to concerns by big-city mayors about migration to the suburbs. “Simply enlarging the circle of wealth redistribution through annexation does not do that.”<sup>153</sup>

City governments, then, need to carefully assess and restructure their own policies to provide a more investor-, family-, and entrepreneur-friendly business climate. Deregulating central cities and lowering overall taxes mitigate the “push” factor in suburbanization.

<sup>149</sup> See the description of the project in the City of Portland's *River District Development Agreement Summary* for Hoyt Street Properties project. See also the discussions in Bob Young, “How Dense Can You Get?” *Willamette Week*, July 16, 1997 and “Tis Better to Give,” *Willamette Week*, March 19, 1997.

<sup>150</sup> Stephen Goldsmith, *The Twenty-first Century City* (Washington, D.C.: Regnery Publishing, 1997), p. 77.

<sup>151</sup> *Ibid.*

<sup>152</sup> *Ibid.*, p. 10.

<sup>153</sup> *Ibid.*, p. 85.

## Part 7

# Environmental Effects of Sprawl

Another criticism of low-density residential development concerns its impact on the environment. Increased development, according to critics, means more pollution, more congestion, and fewer preserved natural resources. The alternative—higher density compact development—would mitigate these impacts, according to some analysts.

On the surface, critics of development make a valid point. If people live further away from central cities and their workplaces, they will have to spend more time in their cars. Since cars pollute, low-density development should increase air pollution.

## A. Air Pollution, Density, and Congestion

Even a casual look at air pollution data suggests that this line of reasoning is suspect. Nitrogen oxides, hydrocarbons, carbon monoxide, and lead pollutants often associated with automobile use have fallen consistently since the 1970s.<sup>154</sup> Smog, formed by some of these pollutants, has also become less of a problem.

Moreover, and perhaps more importantly, metropolitan areas with the lowest-population densities have the fewest air pollution problems. Economist Randal O’Toole examined the relationship between population density, automobile use, and air pollution.<sup>155</sup> O’Toole found that metropolitan areas with the highest densities had the highest smog rating (Figure 11).<sup>156</sup> The 234 metropolitan areas the U.S. Environmental Protection Agency (EPA) considered to have little smog had an average density of 1,505 people per square mile. Similar results were found when central cities were analyzed.

O’Toole also found that population density—or compactness—had little relationship to the automobile’s share of commuter trips.<sup>157</sup> In other words, more densely populated areas did not reduce automobile dependence. “Autos hold more than 75 percent of the market [commuter trips] in every area except New

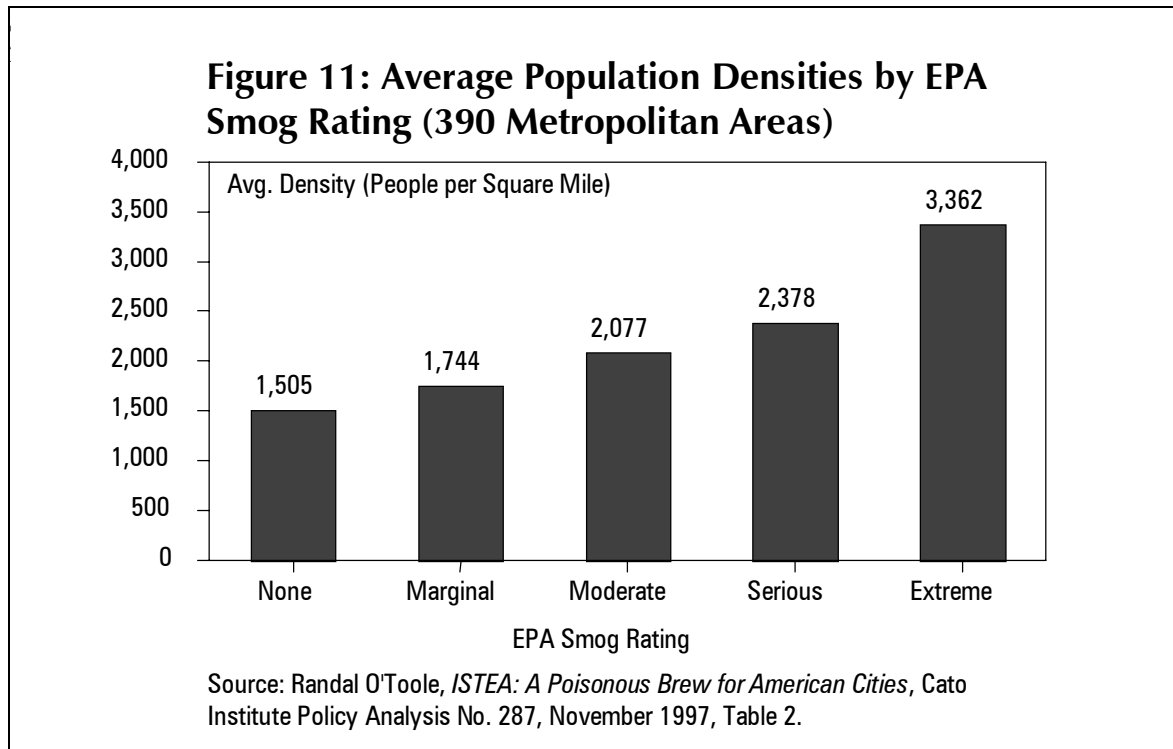
<sup>154</sup> Boris DeWiel, Steven Hayward, Laura Jones and M. Danielle Smith, *Index of Leading Environmental Indicators for the U.S. and Canada*, Pacific Research Institute for Public Policy, April 1997, pp. 10-22. See also Indur M. Goklany, “Richer is Cleaner,” pp. 339-77, in Ronald Bailey, ed., *The True State of the Planet* (New York: Free Press, 1995).

<sup>155</sup> Randal O’Toole, *ISTEA: A Poisonous Brew for American Cities*, Cato Institute Policy Analysis No. 287, November 1997.

<sup>156</sup> *Ibid.*, Table 2, pp. 24–25.

<sup>157</sup> *Ibid.*, pp. 21–24.

York and more than 90 percent in the vast majority of areas, including Los Angeles and Miami, the two densest areas,” notes O’Toole.<sup>158</sup> The number of vehicle miles traveled (VMT) increases with density in the United States.<sup>159</sup> While another analysis by Metro, Portland’s regional planning agency, found “denser regions generally have less VMT,” significant differences among cities were evident.<sup>160</sup>



A policy strategy that attempts to increase population density could lead to more congestion unless road capacity is increased. More congestion could exacerbate air pollution levels. Thus, an increase in density risks increasing air pollution and smog, potentially putting urban areas into nonattainment status with federal clean-air goals.

Even if density could reduce the number of miles traveled, the effects may not be large enough to offset the congestion costs it creates. Proponents of compact development argue that doubling density could result in a 25 to 30 percent reduction in VMT per person.<sup>161</sup> Yet, as O’Toole points out, this reduction in traveling distance per person may be counteracted by the increase in the total number of people making trips, even if the trips are of shorter distance (see box).

Few communities have the kinds of mass-transit systems in place to accommodate a significant share of current commuting trips. Indeed, most urban mass-transit systems are neither efficient nor cost effective

<sup>158</sup> Ibid., p. 22.

<sup>159</sup> Ibid., p. 23. Importantly, culture, values, and local preferences might impact these patterns. Residents of higher-density cities in Europe and Asia, for example, rely more on non-automobile transportation such as public transit, walking, and biking.

<sup>160</sup> *Metro Measured: Transportation, Housing and Regional Growth*, Metro Planning Department, Data Resource Center, May 1994, Figure 7A.

<sup>161</sup> See Ewing, “Is Los Angeles-Style Sprawl Desirable?” p. 113.

under current policies. Light-rail systems are too inflexible and costly to be effective mass-transit alternatives.<sup>162</sup> Until cities deregulate their transit industry or institute “curb rights”<sup>163</sup>—reducing burdensome licensing and inspection systems for taxi, van, and bus services—cost-effective mass transit is unlikely to emerge. Without this deregulation, continued suburbanization and the decentralization of employment may well shorten commute times.<sup>164</sup>

### Higher Residential Density May Not Reduce Congestion

Conventional wisdom holds that if more people live in existing cities, and densities increase, traffic congestion will fall. The underlying assumption is that people will tend to opt for mass transit—buses and rail—more frequently since transit will be more readily available. A closer inspection of this hypothesis suggests mass transit will not be able to alleviate density-induced congestion.

Let’s say a commuter-based bedroom community of 7,000 people registers 2,000 automobile trips of equal distance (holding VMT per person constant). The regional planners double the population of this city to 14,000, doubling the city’s population density. This would also double the number of commuter trips to 4,000. If the city has an effective bus, jitney, or taxi system, the number of automobile trips might fall by, say, 30 percent, or 600 trips. The community still would have to accommodate 1,400 additional commuter trips even though VMT per person falls.<sup>165</sup> If the community did not increase road capacity, as many planners recommend, congestion would also increase. Compact-city development, then, becomes congestion-inducing development.

Indeed, the real story of the past several years has been the increasing complexity of metropolitan areas. Traditionally, urban development has been characterized by a large central city which serves as the economic, political, and cultural hub of the region. Since the suburbanization of people and decentralization of employment, a new regional urban form has developed through which a number of different urban centers emerge within a region.<sup>166</sup> Urban planner Reid Ewing, an architect of Florida’s statewide growth-management plan, recently admitted that when multiple employment and population centers are considered within a region, the environmental benefits are superior to those that attempt to maintain central city dominance.<sup>167</sup>

<sup>162</sup> For an analysis and proposed alternatives, see Thomas A. Rubin and James E. Moore, II, *Rubber Tire Transit: A Viable Alternative to Rail*, Reason Public Policy Institute, August 1997; John Semmens, *Twelve Ways to Keep the Valley Moving without Expanding Public Transit*, Goldwater Institute, August 1997; Peter Gordon and Harry W. Richardson, *The Counterplan for Transportation in Southern California: Spend Less, Serve More*, Reason Public Policy Institute Policy Study No. 174, February 1994.

<sup>163</sup> “Curb rights” are a novel new approach to using property rights to create a competitive market in public transit. See Daniel B. Klein, Adrian T. Moore, and Binyam Reja, *Curb Rights: A Foundation for Free Enterprise in Urban Transit* (Washington, D.C.: Brookings Institute, 1997).

<sup>164</sup> See the discussion on commute times and decentralization in Peter Gordon and Harry W. Richardson, “Where’s the Sprawl?” *Journal of the American Planning Association*, vol. 63, no. 2 (Spring 1997), pp. 275–278. (Letter to the Editor)

<sup>165</sup> See also the discussion in O’Toole, “ISTEA,” p. 23. In this case, VMT per person falls 14.7 percent. If trip length is constant at 10 miles, the initial VMT per person is 2.85 [(2,000 X 10)/7,000]. If the town’s population increased to 14,000 and 1,600 automobile trips were added, VMT falls to 2.43 [(3,400 X 10)/14,000].

<sup>166</sup> This is called “polycentric” urban form while the more traditional urban form was “monocentric.”

<sup>167</sup> Ewing, “Is Los Angeles-style Sprawl Desirable?,” p. 114.

## B. Aesthetics and Open Space

Another important environmental objection to suburbanization is the potential loss of open space. Many people want to discourage land development because it lessens their quality of life: fields and grasslands are replaced by houses that disrupt the aesthetic beauty of a rural lifestyle. Thus, even though an individual family benefits from better housing and increased standard of living, the community may face a net loss because the value to existing residents is diminished by a loss in aesthetics.

Critics of urban sprawl and suburbanization again seem to have a point. More and more contemporary developers are putting houses on smaller lots to preserve open space. A comparison of a cluster-housing development with a more-traditional development in Amherst, Massachusetts by the Center for Rural Massachusetts found that homes in the cluster development appreciated 12.8 percent faster than in the traditional development over a 21-year period.<sup>168</sup> As local planning boards and zoning codes have become more flexible, developers, particularly in built up areas of suburbs, are beginning to incorporate more open space into their designs. This is an indication that the market is responding to consumer preferences for more open space.<sup>169</sup>

Whether the current pace of suburbanization seriously threatens the loss of open space nationally is debatable empirically. At the national level, the case for restricting land development to preserve open space is tenuous: more than 95 percent of the nation's land is rural, either forest, desert, cropland, or pasture. Moreover, even counties with large cities devote substantial portions (e.g., more than 40 percent) of their area to cropland, grasslands, pasture, and forest. The most-urbanized state in the nation is New Jersey, with 31 percent of its land developed or urbanized. Any state program to preserve open space would be focused on providing benefits to a relatively small and narrow geographic area, most likely suburban cities.

On the local level, the issue becomes more complicated. Local residents are more concerned about the loss of open space in their own backyard than hundreds of miles away. In Washtenaw County, Michigan, county commissioners passed a \$3.5 million property tax proposal, eventually defeated in a countywide election, that would have funded an effort to preserve open space in the county.<sup>170</sup> Half of these tax revenues, \$1.75 million, were to be earmarked for lump-sum payments to farmers in exchange for the legal right to develop their property for non-farm uses (e.g., housing) in the future. Peninsula Township near Traverse City established a similar payment for development rights (PDR) program in 1994.

While many people may want to preserve open space, the appropriate amount is unclear. Should open space account for 10 percent, 20 percent, or 50 percent of total land area? New urbanists—planners who favor increasing population densities in cities—argue that between 5 percent and 10 percent of land should be preserved for open space and parks in neighborhoods.<sup>171</sup> Developers and planners favoring cluster-housing

<sup>168</sup> Jeff Lacy, *An Examination of Market Appreciation for Clustered Housing with Permanent Open Space*, University of Massachusetts-Amherst, Department of Landscape Architecture and Regional Planning, Center for Rural Massachusetts, 1990. <http://www-unix.oit.umass.edu/~ruralma/LacyMarket.html>.

<sup>169</sup> For a favorable review of open space zoning, see Randall Arendt, "'Open Space' Zoning: What It Is & Why It Works," *Planning Commissioners Journal*, Issue 5 (July/August 1992), p. 4. <http://www.webcom.com/~pcj/articles/are015.html>

<sup>170</sup> Aram Kalousdian, "Washtenaw Voters Consider Measure to Preserve Land," *Detroit News*, July 17, 1998, p. 4B.

<sup>171</sup> See Peter Calthorpe, *The Next American Metropolis: Ecology, Community, and the American Dream* (Princeton, N.J.: Princeton Architectural Press, 1993), p. 91.

development often argue that 20 percent to 50 percent of land should be reserved for open space. Thus, determining the “appropriate” amount of open space in the absence of market feedback is problematic.

Developers, property owners, and conservationists are responding to homeowners who want housing without eroding the aesthetic and environmentally useful functions of land. Importantly, consumers with an interest in open space are willing to pay for it. The National Association of Home Builders surveyed more than 3,800 homebuyers in 1996 to determine what features they were looking for in a new home. Open space and access to walking and bike trails were the top priorities for prospective homebuyers.

More importantly, homebuyers are demonstrating their interest in open space through the real-estate market where the “bottom line” drives home building.

- In Farmview, Pennsylvania, a home builder built 332 homes on half-acre lots in an area zoned for one acre (thus reserving half the land for open space). The development became the fastest-selling subdivision in its price range in the county.<sup>172</sup>
- In Wisconsin, another homebuilder reserved 100 acres (out of 180) for open space. The homes sit on one-acre lots and compete with nearby developments offering three acres or more.<sup>173</sup>
- In South Carolina, lot sizes were reduced to 11,000 square feet (quarter acre) in one subdivision, and the lots sell for twice as much as 38,500 square-foot lots in adjacent subdivisions.<sup>174</sup>

In short, some home builders are finding that “open space sells.” Smaller lots with more open space, however, often do not appeal to growing and mature families that constitute about 58 percent of the market.<sup>175</sup> Not surprisingly, some builders still believe they need subsidies (e.g., density bonuses) to really make open space communities profitable.

In some cases, providing a solution to the quest for open space requires a more complicated approach than redesigning lot configurations. In South Carolina, a property owner wanted to develop a 3,000-acre island.<sup>176</sup> The original design called for 5,000 homes, but the company soon realized it could not attract homeowners without preserving the environmental integrity and aesthetic beauty of the island. The company formed a land trust that owns or holds easements that prevent future development for 1,000 acres. The trust maintains the land and consults with the company on environmentally sensitive development. The trust is funded by a 1.5 percent fee on the initial purchase of a lot and a 1 percent fee on subsequent sales (enforced through deed restrictions.)

In other cases, property owners have banded together to form compacts and nonprofit land trusts to preserve environmentally sensitive lands, keep farmland intact, and avoid the degradation of scenic vistas. Property owners in the Upper Elk River Valley, Colorado created a “compact” that explicitly outlined commitments by property owners to preserve the agricultural and rural character of the land.<sup>177</sup> The compact allows for limited development on their property—one rancher identified four home sites on his ranch for future development—but encourages

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<sup>172</sup> “Open Space Sells,” *Land Development* (Spring-Summer 1996), p. 10.

<sup>173</sup> *Ibid.*

<sup>174</sup> *Ibid.*

<sup>175</sup> David R. Jensen, “Neotraditional—Nothing New,” *Land Development* (Spring -Summer 1996), p. 15.

<sup>176</sup> This case is profiled by the Sonoran Institute, an Arizona-based nonprofit organization working with property owners, public officials, and conservationists to preserve land while accommodating development. Information on this and other case studies is available through the institute’s web site, <http://www.sonoran.org>.

<sup>177</sup> *Ibid.*

landowners to donate conservation easements on the development value of the property to the American Farmland Trust. The assessed value of the property fell by \$1 million as a result of the donation, reducing estate taxes, and easing the financial burden of owning the property for future generations. Since the easements were also considered a donation to the trust, the property owners received additional tax benefits.

Since open space and environmental conservation issues are largely local, private efforts such as these are becoming increasingly common. They also have the advantage of flexibility since local residents can often respond quickly to local circumstances and provide focused and targeted solutions to open-space problems.<sup>178</sup> Federal and state programs, in contrast, are often poorly targeted and rarely take into consideration the economic benefits of specific parcels and local development patterns.

An important role for state governments will be to establish the legal protections necessary to promote and sustain these private efforts by changing state tax codes and recognizing the value of conservation easements as another form of charitable giving.

## C. Open Space and Urban Growth Boundaries

The political process may “set” open space goals based on an ability to pass bonds or trade for land acquisition. More problematic is the establishment of open-space set asides through regulations, the costs of which are borne by developers and home buyers but may not be transparent. More importantly, unless all open land in a large geographic area is protected, development will simply move further out into rural areas and exacerbate negative perceptions of sprawl.

While many people voice concerns over the loss of open space outside of urban areas, limiting development often accelerates the loss of open space *inside* urban areas. The concept of an urban growth boundary, or limit line is a case in point. Growth boundaries are often proposed as ways to promote infill and protect farmland by preventing development outside of a service area defined by local or regional governments. One of the most-heralded examples of the growth boundary is in Portland, Oregon. The Portland boundary encompasses 24 cities and three counties and is administered by the nation’s only elected regional government (Metro). Metro’s goal is to increase population densities inside the boundary to accommodate future population growth rather than expand the boundary significantly to include more undeveloped farmland. This will be accomplished through small-lot zoning, minimum-density zoning, and requiring “granny flats” (extra rooms for family members or renters) throughout the region.

Preventing development in rural areas outside the boundary implies increasing density within the boundary. This means allowing more infill and consequently promoting the destruction of open space in urban areas through land-use policy. John Charles, environmental policy director for the Cascade Policy Institute in Portland, notes “growth boundaries cause such a shortage of land that developers will eventually do in-fill projects on odd-shaped parcels and other lands that would not ordinarily become developed. This loss should not be minimized because vacant lots have almost as much value as parklands for many urban residents.”<sup>179</sup>

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<sup>178</sup> For a comparison of the advantages and disadvantages of public and private land trusts, see Tom Daniels and Deborah Bowers, *Holding Our Ground: Protecting America’s Farms and Farmland* (Washington, D.C.: Island Press, 1997), pp. 209-211.

<sup>179</sup> John A. Charles, Environmental Policy Director, Cascade Policy Institute, Portland, Oregon, correspondence with author, July 22, 1998.



In fact, to meet Metro's density requirements, "Metro is planning on the complete destruction of nearly all farmland inside the growth boundary."<sup>180</sup> So, growth boundaries and other limits on property development establish a trade-off less open space inside the boundary (where most people live) for more open space outside the boundary (where most people do not live).

While restrictions on suburban land development may enhance the aesthetic value of open space for those on the fringe, they do little to improve the aesthetics for those living in the most-heavily populated and urbanized portions of the city. In fact, growth controls may reduce the aesthetic value of inner-city living because they accelerate the loss of open space.

While this section does not present an exhaustive analysis of the urban and environmental issues that are subplots underlying the suburban growth debate, the data and points raised should cast doubts on simple linkages. The problems of environmental degradation and urban redevelopment are much more complex than those addressed by channeling more people into an urban core. To some extent, the private sector is already moving to protect open space as homeowners show they are willing to pay for it in the real-estate market, and developers recognize its value as an important characteristic of housing in the 1990s. Overall, maintaining or increasing urban densities is likely to exacerbate many environmental problems rather than solve them by accelerating the loss of open space in urbanized areas.

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<sup>180</sup> John A. Charles, "Growth Boundary Stifles Options for Farmland," *The Oregonian*, May 12, 1997. (Letter-to-the-editor)

## Part 8

# Policy Implications

State and local policymakers face a conundrum. On the one hand, citizens are concerned about the pace of modern development. Many people are concerned that continued development will erode their own quality of life, so they erect legal, political, and other barriers to prevent further land development. On the other hand, there is little objective evidence that the nation or its individual states are facing a land-use “crisis.”

The results of a *Deseret News* poll in Utah paint a difficult political problem for most policymakers. Eighty-three percent of Utah citizens “strongly or somewhat agree that open spaces should be set aside now for future generations.”<sup>181</sup> Yet, 88 percent also believe private property owners should be allowed to do what they want with their own land, zoning permitted. Farmers report similar sentiments. Farm Bureau policy statements, for example, include planks advocating the conservation of farmland as well as the need to protect the property rights of farmers.

These seemingly paradoxical views can be reconciled through a market-oriented approach to land-use policy.

## A. The Politics of Sprawl

Economic activity, particularly residential development, is a very visible part of the urban landscape. The politics of transforming agricultural uses to urbanized uses have led governors across the nation to commission task forces on land use, the environment, and farmland preservation. Typically, these commissions analyze statewide land-use trends and make recommendations on ways to preserve open space and farmland. These recommendations are a direct outcome of perceived threats from suburbanization and increased land development.

In most cases, state and local governments are driven to act to avoid future development. Often, the task forces are lulled into adopting unworkable and impractical policy positions and goals. The Utah Quality Growth Partnership, consisting of business executives, politicians, and community leaders, has a mission to “design a strategy for how—and how much—the Salt Lake metropolitan should grow in the next 50 years.”<sup>182</sup> This mission is fraught with difficulties. Predicting future growth over ten years is problematic. Attempting to define a vision that will last 50 years is virtually impossible; it requires intimate knowledge of

<sup>181</sup> “Growth Here, But Leadership Isn’t,” *Deseret News*, April 4, 1998.

<sup>182</sup> Linda Fantin, “Feeling Crowded?; Coalition Tackles Wasatch Front ‘Sprawl’; Coalition to Get Handle on Utah Growth,” *Salt Lake Tribune*, January 14, 1997, p. A1.

what existing and future residents “want” in their community and the ability to precisely forecast economic, population, technological, and demographic trends. Just two decades ago, personal computers were expensive and rare in American households, MS-DOS and compact disks did not exist, the Sony Walkman was on the cutting edge of a burgeoning consumer market, and people seriously debated whether Beta Max or VHS would survive the war over the home video market. As recently as the 1960s, planners failed to anticipate the feminist revolution that brought women into the workplace at unprecedented levels. They also failed to predict the advent of just-in-time inventories, “hoteling” workforces, and telecommuting.

Policy recommendations using a 20-, 30-, or 50-year vision for a state or community inevitably adopt top-down planning tools and government control of land to achieve state policy goals. Publicly funded Purchase of Development Rights (PDR) programs, for example, are mechanisms that would, in effect, place future land development under the control of local governments and effectively circumvent real-estate markets. These strategies may well compromise the quality of life for future generations, since little evidence suggests governments are better suited than real-estate markets and private conservation efforts to provide the kinds of housing and communities people want. Indeed, many planners have acknowledged that “bad planning” (e.g., large-lot zoning) was a significant contributor to the urban sprawl they now want to eliminate. Ironically, many reformers implicitly expect state and local governments to operate differently once the “right” urban planning reforms are in place. Approaches to growth management that rely on activist state and local government direction of land use, quickly becoming the conventional wisdom, should be carefully evaluated before policymakers enact them. A different, more market-oriented approach should be considered.

## B. Principles for Policy Reform

Opponents of suburbanization rarely acknowledge that migration out from the city is a trend dating back centuries, and, when households move, they typically improve their standard of living. In the early 1960s, 61 percent of suburbanites in Cleveland said they had moved out of the central city to live in a cleaner and healthier community.<sup>183</sup> In the 1990s, planning professors David Varady and Jeffrey Raffel found that people moved to the suburbs because those communities offered living environments better suited for raising families.<sup>184</sup> The key qualities for movers include larger houses, more housing diversity, enough land to provide private yards for their children, safe neighborhoods, and high-quality schools.

The research in this study suggests five stylized facts about land use and urbanization in the United States:

1. *Suburbanization is a local issue.* Most states remain and will remain into the foreseeable future rural in character. Even states with large suburban populations have substantial undeveloped land and cropland available. Urbanization is not significantly threatening farmland or the nation’s food supply. Thus, little evidence supports national or a statewide policies to impede real-estate markets or otherwise slow urbanization.
2. *Change is an inevitable part of land development.* Grappling with these changes is one of the primary drivers of political pressure to stop development.

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<sup>183</sup> Mumford, *The City in History*, p. 487.

<sup>184</sup> Varady and Raffel, *Selling Cities*, especially chapters 4 and 5.

3. *Suburbanization generally reflects choices made by families about housing and community* and the willingness of farmers and other landowners to sell their land for further development.
4. *Cities that are losing population and investment often suffer from a number of important problems—push factors—that cannot be solved by simply deterring people from moving.* Many of these factors—education, crime, high taxes—must be solved locally before traditional cities can become competitive with suburban locations for families.
5. *Environmental damage from suburbanization is overstated.* Population and employment decentralization tends to reduce air pollution, congestion, and vehicle trips. Empirically, issues of open space are largely local problems and issues impacting the fringe of urban areas, not a statewide or even regionwide concern. In addition, real-estate markets are responding to consumer preferences for more open space, but developers are often thwarted by prescriptive zoning that mandates low densities.

Given these stylized “facts,” state and local policymakers should follow seven principles to ensure that economic growth is sustainable and land development is consistent with the goals and values of most residents and citizens.

### ***Principle #1: Pursue Economic Policy Neutrality***

State policymakers should pursue a strategy of strict economic neutrality, avoiding the tendency and political pressure to subsidize one industry in favor of others. Despite the best intentions of policymakers, economic development programs and strategies intended to aid one industry inevitably tilt the balance away from others.

Farmland-preservation task forces recommend a number of policies designed to protect the agricultural industry from competition, including Agricultural Security Areas, specific agricultural zoning districts, preferential tax treatment, comprehensive countywide planning, and urban growth boundaries. While the rights of farmers to engage in economic activity must be protected, little evidence suggests that the survival of the nation’s agricultural industry is in doubt, or that the industry is particularly disadvantaged relative to others. Little evidence exists suggesting state and local governments do a better job than national governments to identify and protect niche industries. Public policy appears to adversely affect agriculture mainly in the realm of trade, taxing, and environmental policies. Addressing these policy issues will likely do more to ensure a dynamic agricultural sector given the decreasing importance of land in agricultural productivity. Growth boundaries and farmland-preservation measures artificially prop-up the industry at the cost of limiting residential housing choices.

Detailed economic data suggest that the *direct* contribution of agriculture to the nation’s economy is modest. The number of people employed on farms and in agricultural services represent 3.1 percent of nation’s work force of 153 million people.<sup>185</sup> Manufacturing employment, in contrast, consists of 12.3 percent of the nation’s work force. Total earnings from farms, agricultural services, and related manufacturing—the money people take home and spend—amount to 2.8 percent of total national earnings.<sup>186</sup> Manufacturing, including food processing, has a much higher impact on the state economy. Nonetheless, agriculture often is important as a source of income within many specific communities.

<sup>185</sup> Data estimates for 1998 and from the U.S. Department of Commerce, Bureau of Economic Analysis. <http://govinfo.library.orst.edu/cgi-bin/proj2045?05-state.usa>

<sup>186</sup> Ibid.

This discussion suggests the following more specific policy recommendations:

- Tax-incentive programs that target specific industries and firms to encourage their growth should be avoided;<sup>187</sup>
- Agriculture’s tax status should be the same as other commercial and industrial sectors of the economy;
- Tax reductions should be applied across-the-board;
- Taxes on wealth, including wealth creation and inheritance, should be reduced across the board to enable farmers and other small businesses to pass ownership to subsequent generations;
- Tax policies should be fair and uniform and applied across-the-board to all businesses and citizens;
- Local regulations and permit issuance should be streamlined to reduce the cost of doing business to encourage wealth creation and investment in all businesses and industries, including agriculture.

### ***Principle #2: Price On-site Public Services at their Full-cost***

Local governments should adopt marginal-cost pricing for public services, particularly infrastructure services, to avoid distorting land-development decisions. Markets can coordinate resources efficiently only if the full costs are accurately incorporated into price information. Municipally-run utilities should collect the full “cost- of-doing-business,” including capital costs, for on-site services.<sup>188</sup> To ensure an adequate supply of affordable housing, local governments should deregulate real-estate markets by allowing for mixed uses and relaxing density restrictions in local plans and zoning codes.

One way to ensure that all direct costs are included in infrastructure pricing decisions is to privatize infrastructure. Privatization would ensure that infrastructure costs were fully priced and efficiently provided since private companies cannot afford to systematically subsidize their patrons or overbuild. Privatizing water and sewer services is already well established. Nationally, 509 publicly owned wastewater treatment facilities are operated by private companies, and market analysts expect this market to grow 15 to 20 percent each year.<sup>189</sup> Privately owned and operated water companies serve 15 percent of the U.S. market, and 433 facilities are publicly owned and privately operated.<sup>190</sup> Privatizing some roads could be accomplished by devolving responsibility for building and maintaining roads to neighborhood associations, developers, and special taxing districts.

These strategies would minimize the potential for cross-subsidization of services and the potential for subsidizing land development. They would also better ensure that the selection of infrastructure design and performance levels match consumer preferences and actual need.

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<sup>187</sup> Some instances might warrant special tax treatment for private investment. For example, brownfield development is hampered by an uncertain legal climate where property owners face a significant degree of uncertainty about environmental liability. Programs that provide incentives for environmental cleanup or offset property devaluation because of market uncertainty may be appropriate in these types of cases. These programs, however, should be designed for specific purposes and triggered by market uncertainty, not the investment priorities of local governments.

<sup>188</sup> For an discussion of this issue, see Carson, *Paying for Oregon’s Growth*.

<sup>189</sup> William D. Eggers, et al. *Cutting Local Government Costs Through Competition and Privatization* (Los Angeles, CA: Reason Public Policy Institute and others, 1997), p. 26.

<sup>190</sup> *Ibid.*, p. 32.

### How Market-friendly is “Smart Growth”?

States across the nation are adopting “Smart Growth” initiatives to contain sprawl. The most-recent addition is Tennessee, but Maryland is heralded as one of the most progressive of the Smart Growth programs. Maryland’s program has two components: one based on incentives and the other based on top-down planning.

The incentive aspect is consistent with allowing real-estate markets and concerns about public-service costs to drive development decisions. The State of Maryland does not prevent local governments or private companies from extending infrastructure to new development. Rather, the state has determined that extending state-financed infrastructure to new development outside certain boundaries is inefficient and too costly. Similarly, Maryland’s Rural Legacy Program dedicates state funds to purchase conservation easements and purchase future development rights to preserve open space and farmland.

Another side to the growth-management plan interrupts market forces. In designating Priority Funding Areas (PFAs), the state is imposing a particular view of what a community should look like irrespective of its resident’s wishes. Maryland accomplishes this through density criteria for extending infrastructure and countywide comprehensive planning that designates rural villages to have certain levels of growth. The state guidelines clearly prefer the creation of a distinct urban-rural edge that avoids blending of residential and agricultural land uses regardless of where people prefer to live. Similarly, Maryland is targeting its job-creation tax-credit program to steer private-sector investment into urban areas. Thus, Maryland has combined incentives with top-down visioning to direct land-use and investment patterns.

### ***Principle #3: Reform Zoning to Accommodate Market Trends***

If public services reflect the full costs of providing them to new development, real-estate developers will have strong incentives to reduce these costs. Similarly, developers are already responding to consumers who want the aesthetic benefits of open space, but not the hard work of maintaining a large yard. Both these forces naturally move developers toward cluster-housing concepts and higher-density neighborhood development. Local zoning codes, however, often frustrate this process, because they use antiquated design standards and impose costly approval processes on development applications.

Local zoning codes should be modified to take advantage of market forces by:

- Accommodating mixed uses explicitly in the zoning code to minimize the need to continuously amend the zoning code and map;
- Using performance-zoning criteria such as open space or landscaping provisions to allow projects to qualify for quick, administrative approval once they meet certain design thresholds;
- Requiring demonstration of tangible impact before developers are required to modify their proposals during public hearings; and,
- Establishing a presumption in favor of development project-approval in the zoning process.

#### ***Principle #4: Use Flexible, Voluntary Programs to Protect Open Space***

Another national trend has been to employ taxes and user fees to finance state and local government programs that either purchase land outright or its future development rights. Eleven states have Purchase of Development Rights (PDR) programs in place and have acquired the development rights for almost 350,000 acres of land.<sup>191</sup> Gov. Christie Todd Whitman sponsored an initiative in 1998 to raise public funds to purchase the development rights of open space and farmland in New Jersey.<sup>192</sup> Several states have also used tax-credit programs to provide incentives for property owners to keep their land vacant or undeveloped.

Despite their popularity, PDR programs have disadvantages. First, PDRs are permanent. Once the development rights are sold to the government, future development value is virtually eliminated because the land will be off limits for development. This hamstrings communities as well as the state. As communities evolve over time, their needs and preferences change as well. Land that was considered ideal for one use may become more suitable for another use in the future.

Take the following example. Suppose local-government officials determine that 20 percent of a town's land should be reserved for open space and use the state's PDR program to purchase future development rights for undeveloped farmland and open space in a concentrated area of the city. Ten years later, citizens decide that the emergence of other smaller parks scattered among residential neighborhoods has more than adequately addressed the open-space needs of the community. Working with urban planners, local elected officials determine that 5 to 10 percent of the community's land devoted to parks is more than enough.<sup>193</sup> Freeing up this land would increase the quantity and quality of housing in the city, making housing more affordable. The PDR program that permanently removes land for future development has eliminated any flexibility the community or private developers would have over the use of land. Parkland, in essence, could not be redeveloped as affordable housing regardless of its potential benefit to the community.

PDR programs compound inefficiencies because they eliminate the most-effective mechanism for ensuring that land uses meet the needs and values of individuals: the real-estate market. PDR programs effectively place land off limits to consumers who might otherwise purchase and use the land to fulfill their own housing and family preferences. This means future land uses will be determined by bureaucratic rules rather than the preferences of individual households and families.

Tax-credit programs, in contrast, allow farmers to voluntarily withdraw their land from the real-estate market in exchange for tax benefits for fixed periods, often ten to 90 years. These programs are flexible since they do not permanently withdraw land and do not require a direct outlay of tax money to purchase future development rights. Real-estate markets will continue to allocate land through economic transactions as land is gradually removed from the program. Forty-one percent of Michigan's farmland is already enrolled in a tax-credit program in that state, protecting a substantial portion of open space in the process.

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<sup>191</sup> Keith Wiebe, Ababayehu Tegene and Betsy Kuhn, *Partial Interests in Land: Policy Tools for Resource Use and Conservation*, U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 744, November 1996, Table 2, p. 12.

<sup>192</sup> Jennifer Preston, "Some States Tackling Urban Sprawl with New Taxes," *New York Times*, June 9, 1998.

<sup>193</sup> This proportion is consistent with the urban design standards established by proponents of compact development. See Calthorpe, *The Next American Metropolis*, p. 91.

Alternatively, privately financed land trusts—such as the Nature Conservancy, the National Audubon Society, the Trust for Public Land, and others—can be employed to protect open space and farmland. More than 1,100 local land trusts exist in 48 states, providing a foundation for private-sector conservation efforts across the nation.<sup>194</sup> The areas with the most-active private land trusts include the San Francisco Bay Area, Seattle, Chicago, Southern Florida, and the East Coast north of Virginia.<sup>195</sup> Private land trusts have the advantage of being voluntary organizations—their funding typically comes from their members—and are flexible. They often accommodate limited development on land and can move quickly to meet needs as they crop up. Publicly funded trusts, in contrast, are often constrained by legislatively determined criteria and rigid rules for acquiring land.

### ***Principle #5: Strengthen Private-Property Rights***

A well-defined and enforceable system of property rights is critical for the smooth functioning of real-estate markets. The real-estate market is important for determining how lands will be utilized among infinite possible uses. Real-estate markets are essentially a kind of “rationing” process that places land into uses for which there is demand.

The real-estate market allocates land uses efficiently by providing signals to buyers and sellers about the value and importance of land for different uses. For example, the average per acre value of farm real estate in the United States was \$890 in 1996.<sup>196</sup> Suppose a family of four, wanting to move out of the city, were willing to pay the farmer \$10,000<sup>197</sup> for one acre to build a modest three-bedroom ranch house. The market value of that acre would be its market price—\$10,000 (not \$890). The market, through the price system, is “signaling” the farmer that someone else places a higher economic value on one acre of the land than the appraised value. The sale will only take place if: 1) the farmer believes \$10,000 is more valuable than holding on to the property; *and* 2) the family believes \$10,000 is less important than their desire to build and acquire a home on the property. If both are satisfied, the sale will take place. Both win; they experience “gains to trade.”

This win-win outcome, however, can only take place if property rights—the farmer’s right to own and sell the land and the family’s right to purchase the land—are respected and enforced. When property rights are enforced, the farmer has the protected right to sell *or not sell* the property—whether it is a family of four, a developer, or a land trust. The real-estate market ensures that the land incorporates both buyers and sellers into the decision process.<sup>198</sup>

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<sup>194</sup> Daniels and Bowers, *Holding Our Ground*, p. 193. Oklahoma and Arkansas did not have land trusts as of 1992.

<sup>195</sup> *Ibid.*, Figure 11.1, p. 195.

<sup>196</sup> Average for 48 states, excludes Alaska and Hawaii. *Agricultural Resources and Environmental Indicators, 1996-97*, Table 1.4.1, p. 51. The highest price was \$8,172 per acre in New Jersey, the most-urbanized state in the nation. The lowest value was \$206 per acre in Wyoming.

<sup>197</sup> Farmland in urbanizing areas is typically valued at significantly higher levels than farmland farther out from urban areas. This reflects the fact that land closer to jobs, friends, and existing communities is more valuable for most people (hence higher demand) than land further out. Note, however, that price is not the sole determinant of value in the market. The value of the property is determined jointly by *both* the buyer and seller. The farmer, despite a significantly lower appraised value, still may believe the land is more valuable as farmland than as residential land. Thus, the price serves as a market *signal* and reflects its value only when a transaction occurs.

<sup>198</sup> William A. Fischel, *The Economics of Zoning Laws: A Property Rights Approach to American Land Use Controls* (Baltimore, MD: Johns Hopkins University Press, 1985).



The role of property rights in real-estate markets is recognized by one of the nation's most-important groups engaged in the sprawl debate: farmers. Farm bureaus have a tradition of supporting markets and private-property rights.<sup>199</sup> While they recognize that property rights are important for constitutional protections of civil liberties, farmers also implicitly recognize their importance for facilitating market transactions.<sup>200</sup>

Note the following comment from the Michigan Farm Bureau's official policy statement on "takings," the process by which the government can seize private property for a public purpose as long as "just compensation" is provided:

*We believe any action by government that diminishes an owner's right to use their property constitutes a taking of that owner's property. Therefore, government should provide due process and compensation to the exact degree that an owner's right to use his property has been diminished by government action. Furthermore, we believe the only just basis for compensation in such cases is fair market value at its highest possible value and considering its potential, regardless of how it is currently utilized.*<sup>201</sup>

The value of land is its market potential, not its current use. In order for the full market potential of land to be realized, it must be available for sale. In other words, it must be subject to real-estate markets which allow buyers and sellers to determine the value of land and its use.

Of course, the protection of property rights is particularly important to farmers and other owners of undeveloped property: their land's potential use is an important source of wealth. Once zoning or other politically imposed restrictions are placed on land, its value and the owner's wealth may fall or rise.<sup>202</sup>

While some farmers may desire this outcome, it comes at the price of restricting other farmers, distorting real-estate markets, compromising community well-being by increasing the cost of housing, and often confining families in lower-quality housing.

### ***Principle #6: Adopt Nuisance-Based Standards for Land-Use Regulation***

A well-defined property rights system also permits local governments and policymakers to address the spillover effects of development. Often, zoning and land-use regulation are intended to control for "nuisances," negative impacts on neighbors such as congestion, noise, loss of open space, and so on. Zoning actually diminishes the importance of these nuisances, also called "externalities," in land development. Zoning gives a legal right to develop land for a specific purpose. If land is zoned for neighborhood businesses that allow bars, the property owner has a legal right to locate a bar on the property, irrespective of its impacts on congestion, noise, or public welfare.

<sup>199</sup> For example, see Policy No. 46 from *1998 Policy Book*, adopted by the delegates to the seventy-eight annual meeting, Michigan Farm Bureau, December 9-12, 1997, Traverse City, Michigan. "We believe in the American capitalist, private, competitive-enterprise system in which property is privately owned, privately managed and operated for profit and individual satisfaction." *1998 Policy Book*, p. 42.

<sup>200</sup> "Any erosion of that right weakens all other rights guaranteed to individuals by the Constitution." *Ibid.*

<sup>201</sup> *Ibid.*

<sup>202</sup> Importantly, the contradiction between planning restrictions on property rights and the protections against takings is not evident in the Michigan Farm Bureau's policy statement. Policy Nos. 44 and 45, for example, advocate the use of zoning and other government interventions to protect farmland against urban development. Of course, zoning is a political restriction on the property rights of land owners, often other farmers. This contradiction is also evident in the policy statements of farm bureaus in other states.

A property-rights and nuisance-based approach to land-use regulation allows local officials to address the impacts of land development on neighbors explicitly. Any neighbor or property owner could lodge a complaint against a particular use by showing the land use (e.g., a bar) has a direct impact on the other property owner. In short, the planning system gives standing to those impacted by land development by recognizing their rights to use their property without interference from neighbors. If a tangible impact or harm can be shown, the property owner creating the nuisance would have to compensate for the harm, alter his activities to mitigate the nuisance, or shut down his operation if a court determines that a nuisance, in fact, exists. Using a property-rights and nuisance-based approach, land-use regulation can explicitly recognize the impacts of development on neighbors.

### ***Principle #7: Facilitate Change and Community Evolution***

Perhaps more than most public policies, land-use policy tends to be driven by parochial political interests. Much of the debate and concern over sprawl is a reaction to people migrating from big cities to outlying suburban and rural areas. The irony is that most people are migrants themselves: they moved to the community for the same reasons others are currently moving to their community.

Land-use policy becomes focused on “preserving” the character of the community. Instead, public policy should focus on allowing the community to adapt and change to the new demands and practical requirements of the city, as well as to mitigate specific nuisances or harms. While suburbanites might move to a community for its rural “charm,” the mere fact that non-rural people have moved to the community changes its character.

A community focused on preservation is unsustainable. As incomes rise, people expect their quality of life to improve as well. They expect better housing and communities, and most people move their families to take advantage of them. At the state level, attempts to preserve the existing character of a community run the risk of destroying the economic and social fabric of the state.

Communities can evolve if state and local land policies:

- Focus on the actual impacts of development, not land uses *per se*;
- Restrict detailed planning to public infrastructure investments;
- Abandon comprehensive zoning which creates a political environment that impedes change and subordinates property rights in favor of political control over property.

Markets are a decentralized and voluntary way to match consumer preferences with goods and services. Prices for land tell consumers how much it will cost to obtain a certain standard of living and environment. They tell producers whether revenues are sufficient to cover the costs. Since the market is consumer driven, and involves the participation of millions of consumers and producers using specific decentralized information about demand for and supply of resources on a daily basis, choices about how resources should be used to meet citizen preferences.

Some urban policy analysts have argued that land is too valuable a resource to be left to the private market.<sup>203</sup> The complexity of the urban-development process and the importance of respecting all community residents and their preferences, however, suggests the desirability of market-based alternatives to top-down planning of land use.

## C. Conclusion

The evidence in this report supports the view that land development is not random, irregular, or chaotic. On the contrary, land development is constrained by consumer behavior (households) and production costs. Few developers are proposing high-density, single-family housing units in rural counties because demand will not support that type of housing in that area. Similarly, transportation and commute costs prevent most families and workers from living more than an hour from their work place.

The dangers of giving in to “anti-growth” sentiment are significant. Between now and 2010:

- The U.S. economy is expected to expand by 11.5 percent after adjusting for inflation;<sup>204</sup>
- The U.S. population is expected to grow 11 percent to 300.4 million people, and employment is expected to grow by 15 percent;<sup>205</sup>
- Total personal income is expected to grow by 25.9 percent;<sup>206</sup> and,
- The value of farm output is also expected to *grow* by 25.9 percent—even with suburban growth trends—although the number of farms is declining and the number of farm workers is expected to fall by 4.9 percent.<sup>207</sup>

Existing residents will expect to see their quality of life increase with their incomes. They will also expect better housing, safer communities, and easier access to normal, everyday living such as shopping and recreation. These trends require accommodating rather than restricting growth and regulating it through market-oriented institutions.

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<sup>203</sup> “In the future, we will view land less as a commodity that can be freely traded and more as a public resource that must be utilized and maintained for the good of all.” *Land Resources*, p. 3.

<sup>204</sup> 1998 to 2010 estimates by U.S. Department of Commerce, Bureau of Economic Analysis.

<sup>205</sup> *Ibid.*

<sup>206</sup> *Ibid.*

<sup>207</sup> *Ibid.*

# About the Author

Samuel R. Staley is Director of the Urban Futures Program (<http://www.urbanfutures.org>) for Reason Public Policy Institute. As an economic development consultant, researcher, and policy analyst, he has authored more than 50 articles, studies and reports on urban development issues and policy including two books, *Drug Policy and the Decline of American Cities* (Transaction, 1992) and *Planning Rules and Economic Performance: the Case of Hong Kong* (Chinese University Press/Hong Kong Centre for Economic Research, 1994). His work has appeared in professional journals such as the *Journal of the American Planning Association*, *Planning and Markets* (<http://www-pam.usc.edu>) and the *Capital University Law Review* as well as the popular press, including the *Wall Street Journal*, *Houston Chronicle*, *Detroit News and Free Press*, the *Charlotte Observer* and the *San Diego Union-Tribune*. Dr. Staley earned his B.A. in economics-public policy from Colby College, M.S. in economics from Wright State University, and Ph.D. in public administration with an urban planning concentration from The Ohio State University.

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*How to "Build Our Way Out of Congestion": Innovative Approaches to Expanding Urban Highway Capacity*. By Peter Samuel, Policy No. 250.

# Appendix

## Appendix A: Sprawl Index by State

Rank	1970-92				1970-82				1982-92			
	State	Urban Land	Pop. Growth	Sprawl Index	State	Urban Land	Pop. Growth	Sprawl Index	State	Urban Land	Pop. Growth	Sprawl Index
1	IA	0.56	-0.01	<b>-86.21</b>	NY	0.39	-	-	OK	0.03	-0.00	<b>-52.52</b>
2	NY	0.46	-0.01	<b>-52.2</b>	PA	0.35	0.04	<b>10.97</b>	LA	0.28	-0.02	<b>-15.05</b>
3	PA	0.48	0.02	<b>31.19</b>	MA	0.49	0.01	<b>34.26</b>	WY	0.61	-0.08	<b>-7.31</b>
4	ND	0.79	0.03	<b>28.39</b>	RI	0.15	0.00	<b>32.95</b>	WV	0.21	-0.07	<b>-2.84</b>
5	WV	0.73	0.04	<b>20.54</b>	OH	0.28	0.01	<b>30.41</b>	IA	0.05	-0.03	<b>-1.84</b>
6	OH	0.44	0.03	<b>13.8</b>	IA	0.48	0.02	<b>21.80</b>	ND	0.09	-0.05	<b>-1.74</b>
7	MA	0.59	0.05	<b>11.03</b>	CT	0.51	0.04	<b>14.58</b>	MT	0.35	0.02	<b>14.66</b>
8	IL	0.46	0.04	<b>10.41</b>	ME	2.01	0.14	<b>13.97</b>	HI	1.87	0.16	<b>11.91</b>
9	SD	0.73	0.07	<b>9.92</b>	AK	6.51	0.49	<b>13.4</b>	MS	0.21	0.02	<b>10.02</b>
10	AK	8.21	0.94	<b>8.74</b>	MN	1.01	0.09	<b>11.82</b>	KY	0.16	0.02	<b>8.32</b>
11	AL	1.72	0.2	<b>8.56</b>	IL	0.30	0.03	<b>10.53</b>	PA	0.09	0.01	<b>8.22</b>
12	CT	0.65	0.08	<b>8.1</b>	SD	0.38	0.04	<b>10.28</b>	IL	0.13	0.02	<b>8.09</b>
13	MT	1.28	0.19	<b>6.91</b>	MD	0.91	0.09	<b>9.92</b>	AR	0.35	0.04	<b>8.01</b>
14	LA	1.16	0.17	<b>6.76</b>	AL	1.38	0.14	<b>9.89</b>	SD	0.25	0.04	<b>7.20</b>
15	MO	0.73	0.11	<b>6.64</b>	MI	0.25	0.03	<b>9.70</b>	NE	0.09	0.01	<b>6.45</b>
16	NE	0.53	0.08	<b>6.64</b>	MO	0.42	0.05	<b>7.88</b>	OH	0.12	0.02	<b>5.48</b>
17	AR	1.58	0.24	<b>6.47</b>	ND	0.65	0.08	<b>7.78</b>	IN	0.13	0.03	<b>4.06</b>
18	RI	0.34	0.05	<b>6.29</b>	KS	0.45	0.07	<b>6.63</b>	MO	0.22	0.05	<b>4.03</b>
19	HI	3.1	0.49	<b>6.29</b>	NE	0.40	0.06	<b>6.23</b>	ID	0.37	0.09	<b>3.88</b>
20	MS	1.11	0.18	<b>6.28</b>	VT	1.02	0.17	<b>6.12</b>	NJ	0.19	0.05	<b>3.62</b>
21	MI	0.41	0.07	<b>6.24</b>	IN	0.32	0.05	<b>6.03</b>	RI	0.17	0.05	<b>3.42</b>
22	OK	1.56	0.25	<b>6.18</b>	OK	1.47	0.25	<b>5.82</b>	MI	0.12	0.04	<b>3.22</b>
23	WY	2.39	0.4	<b>6.03</b>	DE	0.49	0.09	<b>5.31</b>	KS	0.15	0.05	<b>3.04</b>
24	IN	0.49	0.09	<b>5.65</b>	NJ	0.19	0.04	<b>5.21</b>	CO	0.37	0.13	<b>2.84</b>
25	ME	1.37	0.24	<b>5.63</b>	NH	1.43	0.28	<b>5.03</b>	NV	1.41	0.51	<b>2.75</b>
26	KS	0.66	0.12	<b>5.56</b>	TN	0.91	0.18	<b>4.94</b>	AL	0.14	0.05	<b>2.66</b>
27	MD	1.3	0.25	<b>5.22</b>	WI	0.34	0.07	<b>4.88</b>	NM	0.41	0.16	<b>2.56</b>
28	VT	1.45	0.28	<b>5.15</b>	MS	0.75	0.15	<b>4.88</b>	WI	0.13	0.05	<b>2.36</b>
29	KY	0.81	0.16	<b>4.91</b>	AR	0.92	0.19	<b>4.75</b>	VT	0.21	0.10	<b>2.16</b>
30	NJ	0.42	0.09	<b>4.57</b>	NC	0.84	0.18	<b>4.56</b>	CT	0.09	0.04	<b>2.11</b>
31	TN	1.21	0.28	<b>4.39</b>	MT	0.69	0.16	<b>4.39</b>	TN	0.16	0.08	<b>2.05</b>
32	MN	0.74	0.17	<b>4.23</b>	SC	1.02	0.24	<b>4.30</b>	WA	0.38	0.20	<b>1.89</b>
33	WI	0.52	0.13	<b>4</b>	VA	0.74	0.18	<b>4.11</b>	NC	0.24	0.14	<b>1.81</b>
34	NC	1.29	0.34	<b>3.74</b>	KY	0.57	0.14	<b>3.94</b>	NY	0.05	0.03	<b>1.80</b>
35	SC	1.42	0.39	<b>3.67</b>	GA	0.91	0.23	<b>3.94</b>	OR	0.20	0.12	<b>1.72</b>
36	DE	0.85	0.26	<b>3.3</b>	WV	0.43	0.12	<b>3.64</b>	SC	0.19	0.12	<b>1.62</b>
37	CO	1.71	0.57	<b>3.01</b>	LA	0.69	0.19	<b>3.53</b>	MA	0.06	0.04	<b>1.61</b>
38	GA	1.34	0.47	<b>2.83</b>	CO	0.97	0.39	<b>2.52</b>	DE	0.24	0.15	<b>1.58</b>

Rank	1970–92				1970–82				1982–92			
	State	Urban Land	Pop. Growth	Sprawl Index	State	Urban Land	Pop. Growth	Sprawl Index	State	Urban Land	Pop. Growth	Sprawl Index
39	<b>VA</b>	1.02	0.37	<b>2.75</b>	<b>UT</b>	1.08	0.47	<b>2.29</b>	<b>MD</b>	0.21	0.15	<b>1.43</b>
40	<b>NM</b>	1.4	0.56	<b>2.53</b>	<b>AZ</b>	1.38	0.63	<b>2.19</b>	<b>AZ</b>	0.40	0.34	<b>1.19</b>
41	<b>NV</b>	4.05	1.73	<b>2.34</b>	<b>WY</b>	1.10	0.52	<b>2.11</b>	<b>GA</b>	0.22	0.20	<b>1.14</b>
42	<b>NH</b>	1.18	0.51	<b>2.32</b>	<b>TX</b>	0.77	0.37	<b>2.09</b>	<b>CA</b>	0.25	0.24	<b>1.03</b>
43	<b>ID</b>	1.1	0.5	<b>2.23</b>	<b>NM</b>	0.71	0.34	<b>2.07</b>	<b>TX</b>	0.16	0.15	<b>1.02</b>
44	<b>WA</b>	1.06	0.51	<b>2.08</b>	<b>WA</b>	0.49	0.25	<b>1.92</b>	<b>VA</b>	0.16	0.16	<b>0.99</b>
45	<b>AZ</b>	2.34	1.18	<b>1.98</b>	<b>FL</b>	0.99	0.54	<b>1.82</b>	<b>AK</b>	0.23	0.31	<b>0.74</b>
46	<b>TX</b>	1.05	0.58	<b>1.81</b>	<b>OR</b>	0.46	0.27	<b>1.67</b>	<b>FL</b>	0.17	0.29	<b>0.59</b>
47	<b>OR</b>	0.75	0.42	<b>1.77</b>	<b>CA</b>	0.39	0.24	<b>1.62</b>	<b>UT</b>	0.08	0.17	<b>0.49</b>
48	<b>UT</b>	1.25	0.72	<b>1.74</b>	<b>ID</b>	0.54	0.37	<b>1.47</b>	<b>NH</b>	-0.10	0.17	<b>-0.59</b>
49	<b>CA</b>	0.75	0.55	<b>1.36</b>	<b>HI</b>	0.43	0.29	<b>1.47</b>	<b>MN</b>	-0.13	0.08	<b>-1.63</b>
50	<b>FL</b>	1.33	0.99	<b>1.34</b>	<b>NV</b>	1.10	0.80	<b>1.36</b>	<b>ME</b>	-0.21	0.09	<b>-2.47</b>
National Avg.		0.9	0.26	<b>3.52</b>	--	0.62	0.03	<b>20.39</b>	--	0.17	0.22	<b>0.79</b>
National Med.		<b>1.37</b>	<b>0.24</b>	<b>5.63</b>	--	<b>1.43</b>	<b>0.28</b>	<b>5.03</b>	--	<b>1.41</b>	<b>0.51</b>	<b>2.75</b>

Source: National Agricultural Statistics Service and U.S. Bureau of the Census. States with declining populations and increasing urban areas were listed first to reflect more intensive urban land use.

## Appendix B: Land in Farms (thousands of acres)

State	1950	1960	1970	1980	1990	1997
AL	21,300	17,200	14,800	12,200	10,100	9,700
AK	N/av	1,635	1,710	1,520	990	920
AZ	42,500	44,600	41,300	38,100	36,200	35,400
AR	19,100	17,900	17,600	16,500	15,500	14,800
CA	37,500	38,800	36,600	33,800	30,800	30,000
CO	39,000	40,300	39,700	36,000	33,100	32,500
CT	1,560	1,080	590	490	420	380
DE	904	800	715	650	600	565
FL	17,500	17,400	14,800	13,400	10,900	10,300
GA	26,000	22,000	17,400	15,000	12,500	11,800
HI	N/av	2,600	2,300	1,970	1,680	1,590
ID	14,000	15,300	15,500	15,200	13,700	13,500
IL	31,700	30,700	29,500	28,800	28,400	28,000
IN	20,200	19,400	17,500	16,800	16,300	15,900
IA	34,800	34,700	34,400	33,800	33,500	33,200
KS	50,500	50,200	49,900	48,300	47,900	47,800
KY	19,800	18,000	16,300	14,600	14,100	13,900
LA	11,600	11,000	11,800	10,100	8,900	8,500
ME	4,450	3,350	1,910	1,615	1,450	1,340
MD	4,225	3,750	3,080	2,750	2,250	2,100
MA	1,860	1,240	750	720	640	570
MI	17,900	15,400	12,700	11,400	10,800	10,500
MN	33,300	32,400	30,900	30,300	30,000	29,800
MS	21,500	19,800	17,300	14,600	13,000	12,500
MO	36,000	34,700	33,200	31,300	30,400	29,900

State	1950	1960	1970	1980	1990	1997
MT	65,000	66,700	64,200	61,900	60,500	59,600
NB	48,400	48,200	48,100	47,700	47,100	47,000
NV	7,500	9,200	9,000	8,990	8,900	8,800
NH	1,850	1,240	670	545	440	430
NJ	1,770	1,460	1,060	1,020	870	830
NM	51,000	51,500	47,800	46,800	44,500	43,500
NY	17,000	14,300	11,200	9,400	8,400	7,700
NC	19,900	17,800	15,200	11,700	9,700	9,000
ND	42,700	42,100	41,900	41,700	40,500	40,200
OH	21,800	19,200	17,600	16,200	15,600	15,100
OK	37,500	37,400	37,100	34,600	33,000	34,000
OR	21,000	21,200	20,100	18,100	17,800	17,500
PA	14,500	12,300	10,200	9,000	8,100	7,700
RI	250	141	76	75	70	63
SC	12,200	10,000	8,300	6,400	5,200	5,000
SD	44,900	45,600	45,500	45,000	44,300	44,000
TN	19,100	16,800	15,400	13,600	12,100	11,800
TX	150,000	153,000	142,800	138,200	132,000	129,000
UT	12,000	13,600	13,200	12,400	11,300	11,000
VT	3,800	3,150	2,010	1,740	1,440	1,350
VA	16,500	13,500	11,400	9,800	8,900	8,500
WA	18,000	18,000	16,600	16,300	16,000	15,700
WV	8,550	6,700	5,100	4,200	3,700	3,700
WI	23,600	22,200	20,100	18,600	17,600	16,800
WY	36,000	36,100	35,500	35,000	34,700	34,600
National Avg.	1,202,019	1,175,646	1,102,371	1,038,885	986,850	968,338

Source: National Agricultural Statistics Service, Washington, D.C., September, 1998.

## Appendix C: Change in Land in Farms by Decade

State	1950s	1960s	1970s	1980s	1990s*
AL	19.2%	14.0%	17.6%	17.2%	5.7%
AK	n/av	11.1%	34.9%	10.1%	4.6%
AZ	4.9%	7.4%	7.7%	5.0%	3.2%
AR	6.3%	1.7%	6.3%	6.1%	6.5%
CA	3.5%	5.7%	7.7%	8.9%	3.7%
CO	3.3%	1.5%	9.3%	8.1%	2.6%
CT	30.8%	45.4%	16.9%	14.3%	13.6%
DE	11.5%	10.6%	9.1%	7.7%	8.3%
FL	0.6%	14.9%	9.5%	18.7%	7.9%
GA	15.4%	20.9%	13.8%	16.7%	8.0%
HI	n/av	11.5%	14.3%	14.7%	7.7%
ID	9.3%	1.9%	9.9%	2.1%	1.3%
IL	3.2%	3.9%	2.4%	1.4%	2.0%
IN	4.0%	9.8%	4.0%	3.0%	3.5%
IA	0.3%	0.9%	1.7%	0.9%	1.3%

State	1950s	1960s	1970s	1980s	1990s*
KS	0.6%	0.6%	3.2%	0.8%	0.3%
KY	9.1%	9.4%	10.4%	3.4%	2.0%
LA	5.2%	7.3%	14.4%	11.9%	6.4%
ME	24.7%	43.0%	15.4%	10.2%	10.8%
MD	11.2%	17.9%	10.7%	18.2%	9.5%
MA	33.3%	39.5%	4.0%	11.1%	15.6%
MI	14.0%	17.5%	10.2%	5.3%	4.0%
MN	2.7%	4.6%	1.9%	1.0%	1.0%
MS	7.9%	12.6%	15.6%	11.0%	5.5%
MO	3.6%	4.3%	5.7%	2.9%	2.3%
MT	2.6%	3.7%	3.6%	2.3%	2.1%
NB	0.4%	0.2%	0.8%	1.3%	0.3%
NV	22.7%	2.2%	0.1%	1.0%	1.6%
NH	33.0%	46.0%	18.7%	19.3%	3.2%
NJ	17.5%	27.4%	3.8%	14.7%	6.6%
NM	1.0%	7.2%	2.1%	4.9%	3.2%
NY	15.9%	21.7%	16.1%	10.6%	11.9%
NC	10.6%	14.6%	23.0%	17.1%	10.3%
ND	1.4%	0.5%	0.5%	2.9%	1.1%
OH	11.9%	8.3%	8.0%	3.7%	4.6%
OK	0.3%	0.8%	6.7%	4.6%	4.3%
OR	1.0%	5.2%	10.0%	1.7%	2.4%
PA	15.2%	17.1%	11.8%	10.0%	7.1%
RI	43.6%	46.1%	1.3%	6.7%	14.3%
SC	18.0%	17.0%	22.9%	18.8%	5.5%
SD	1.6%	0.2%	1.1%	1.6%	1.0%
TN	12.0%	8.3%	11.7%	11.0%	3.5%
TX	2.0%	6.7%	3.2%	4.5%	3.2%
UT	13.3%	2.9%	6.1%	8.9%	3.8%
VT	17.1%	36.2%	13.4%	17.2%	8.9%
VA	18.2%	15.6%	14.0%	9.2%	6.4%
WA	0.0%	7.8%	1.8%	1.8%	2.7%
WV	21.6%	23.9%	17.6%	11.9%	0.0%
WI	5.9%	9.5%	7.5%	5.4%	6.5%
WY	0.3%	1.7%	1.4%	0.9%	0.4%
National avg.	2.2%	6.2%	5.8%	5.0%	2.7%

\*1990s loss rate is based on average annual loss of farmland through 1997 and extrapolated through the entire decade.

Source: National Agricultural Statistics Service, Washington, D.C., September, 1998.



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