URBAN GROWTH MANAGEMENT AND ECOLOGICAL SUSTAINABILITY: CONFRONTING THE "SMART GROWTH" FALLACY

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ABSTRACT—Growth management and Smart Growth initiatives in the United States represent an ongoing process of growth accommodation. Because growth by definition constitutes unsustainable behavior in that it is incapable of being continued or maintained indefinitely, ongoing growth accommodation must be recognized as activity incongruous with advancing the goal of ecological sustainability. This paper portrays the growth-accommodation practices that make up growth management and Smart Growth initiatives today; considers the magnitudes of ongoing demographic, economic, and urban growth destined to nullify those initiatives; and suggests alternative growth management endeavors to further ecological sustainability.

GROWTH MANAGEMENT IN THE UNITED STATES

A growth management movement emerged in the United States during the late 1960s and early 1970s in response to an ideological shift in public perceptions about the value of further growth (Reilly 1973, Scott 1975). During this period the traditional association of population, economic, and urban growth with societal progress gave way to a new and more skeptical view that associated growth with problems like overcrowded schools, tax increases, rising crime rates, physical blight, traffic congestion, loss of open space, and increasing air and water pollution. This ideological shift in American attitudes toward growth came to affect popular perceptions about the development of land, because uses of land also were linked to a number of specific problems during this period. Growth, as manifested in the development of land, was blamed for such diverse problems as the costly and destructive development pattern associated with urban sprawl, loss of prime agricultural land, an inefficient provision of public facilities and services, escalating housing prices, pervasive environmental degradation, and loss of community character. Growth management was advanced as an avenue for addressing these ills associated with future growth and its accompanying land development without having to repudiate growth.

Proponents of growth management responded to the new perception that growth had to be managed, regulated, or controlled, rather than simply promoted as in the past, by proposing *management* strategies for addressing problems attributed to growth. It was suggested, for example, that containing growth within designated urban growth boundaries would hold down the cost of providing public facilities and services, while conserving rural resource lands and protecting environmentally sensitive lands from sprawling development. Although growth-management literature distinguishes between *growth management* and *growth control* (Landis 1992, Levy 1994)–the former is associated with attempts to influence the *location* or *quality* of growth and the latter is associated with efforts to limit the *amount* or *rate* of growth–research has revealed a strong bias in favor of *management* over *control* (Finkler and Peterson 1974, Glickfeld and Levine 1991). In fact, the overwhelming majority of local growth management programs implemented to date clearly reflect continued growth accommodation practices rather than the imposition of limits (Zovanyi 1998). These management programs have not sought to reduce either the overall *amount* or the *rate* of growth. They have instead reflected the belief that growth can continue to be accommodated if its *location* is properly planned and its *quality* ensured by providing adequate infrastructure and mitigating negative effects.

Although local governments have been the principal players in implementing growth management programs in the United States, some states have passed laws asserting a state role in growth management activities (DeGrove and Miness 1992, Zovanyi 1998). To date, 11 states have passed statewide laws giving direction to growth management actions in local communities, and these laws have uniformly reinforced the noted growth-accommodation orientation of local programs. All these statewide laws contain provisions intended to promote ongoing growth, and in 8 of the 11 states, the laws actually mandate ongoing growth accommodation by local governments (Zovanyi 1999). In Washington state, for example, local governments are required to adjust their urban growth boundaries every 10 years to accommodate the next 20 years of state-projected growth. However, local communities have shown a bias in favor of such accommodative management programs even in states like California where they have operated in the absence of statewide laws directing their management activities. As growth management advocates have acknowledged: "Growth management systems are inherently growth-accommodating" (Nelson and Duncan 1995: 111).

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The Pro-Growth Bias of Growth Management

The growth-accommodation orientation of growth management in America may be attributed to the strong pro-growth bias that permeates the management movement. That pro-growth bias is evident in growth management literature. Those who have written on the subject have affixed a number of modifiers to the word growth to justify its continuance and have in the process revealed their pro-growth inclinations. Their writings refer to "inevitable, normal, reasonable, proper, realistic, sensible, responsible, and legitimate" growth (Zovanyi 1998). These spokespersons for the growth management movement also refer to "balanced growth," arguing that a balance can be achieved between the equally legitimate ends of ongoing growth and environmental protection without compromising either (DeGrove 1989). As the growth management movement evolved, it became fashionable to refer to "smart growth" as an alternative to the "dumb growth" represented by sprawl (Chen 2000, Lorentz and Shaw 2000), a distinction that suggested the problem was not with growth per se but rather its inefficient manifestation in the form of sprawl. Representatives of the management movement even suggest the possibility of "sustainable growth" (Kaiser *et al.* 1995: 172, Nelson and Duncan 1995: xi), when growth in the material terms represented by demographic, economic, and urban increases is by definition unsustainable because it cannot be maintained or continued indefinitely. In the end, a case can be made for the claim that the pro-growth bias demonstrated by those in the growth management movement has translated into an institutionalized form of support for the growth imperative that pervades all aspects of American culture (Zovanyi 1999, 2000).

The Absence of Sustainability Considerations in Growth Management

Growth management in the United States has shown little regard for sustainability since the movement began in the late 1960s and early 1970s (Zovanyi 1998). The absence of such considerations during the 1970s and 1980s is understandable, because interest in sustainable development in the United States did not emerge until the 1990s. However, the continued dearth of concern about sustainability in growth management during the 1990s and the current decade is more difficult to explain in light of the global interest in sustainable development during that period. Part of the explanation undoubtedly stems from the complexity of any formulation of sustainable development and the resultant difficulty of incorporating such a formulation into specific growth management programs. The sustainable development movement postulates that a sustainable society must balance social equity, economic prosperity, and environmental integrity (Krizek and Power 1996), and addressing all these "3 Es" of sustainability would require growth management initiatives to simultaneously confront "social sustainability," "economic sustainability," and "environmental sustainability." The challenges associated with advancing such an agenda might therefore be assumed to explain at least part of the failure of the growth management movement to incorporate sustainability.

Another plausible explanation for the paucity of sustainability concerns in growth management initiatives to date is the conundrum presented by the irreconcilable incongruity between growth and sustainability. Growth does not satisfy what has been referred to as the distinguishing characteristic of sustainability, which is the ability to be continued or maintained (Shearman 1990). Because the growth management movement is committed to the virtue of ongoing growth, the impossibility of reconciling continued growth with sustainable behavior also might be offered as a partial explanation of why the growth management movement has largely ignored the matter of sustainability to date. However, many current formulations of sustainable development assume there are prospects for further growth if it is merely the right kind, i.e., growth based on an efficient use of materials and energy. This viewpoint leads to optimism about the possibility of realizing greater economic prosperity, as one of the noted dimensions of sustainable development, via continued economic growth without jeopardizing the quest for sustainability. These suggested prospects for "sustainable growth" have not, however, been adopted as a component of the pro-growth rationale employed by members of the growth management movement.

Sustainable development literature in America addresses the need to limit sprawl, create compact communities, revitalize existing urban centers, preserve natural ecosystems, and reduce resource use, pollution, and automobile use (Beatley and Manning 1997, Wheeler 2000). Sustainable communities literature in the United States, in turn, tends to make a case for more compact and contiguous development patterns, reduced automobile dependency and alternative forms of transportation, mixed-use developments and infill growth, and reduced resource consumption and waste generation (Breheny and Rockwood 1993, Van der Ryan and Calthorpe 1986). As it turns out, traditional growth management and its current manifestation in the form of a Smart Growth movement both have a lot in common with these stated aims. Proponents of Smart Growth, as the following section will reveal, also favor limiting sprawl; creating compact, mixed-use communities; curtailing automobile use; and supporting infill development over outlying development. However, these similar ends have been justified by different rationales from those used by sustainable development and sustainable communities advocates. For Smart Growth proponents the primary rationale for containing sprawl and promoting compact settlements has been one of avoiding costly and inefficient facility and service provisions across the landscape. Among sustainable development and sustainable communities advocates, the primary rationale has rather been one of pursuing prospective reductions in resource consumption and waste generation. When Smart Growth proponents advocate containment of growth as a way of reducing the loss of agricultural and forestry resource lands, they have not based their concern on a desire to achieve a sustainable use of such resources in the manner of those in the sustainability camps, but rather on a desire to avoid declines in resource-based sectors of state economies. However, these differences belie a striking similarity among the three groups: all share a decidedly pro-growth bias (Zovanyi 2004). All three camps continue to espouse the possibility of transforming ongoing growth into a socially and environmentally benign form of expansion.

Few communities have undertaken sustainable development initiatives in the United States, and their efforts have not been linked to growth management programs. Those initiatives have typically focused on tracking sets of sustainability indicators to measure movement toward or away from sustainability in various areas (Krizek and Power 1996). Although these efforts have drawn on former work in tracking quality-of-life indicators in American communities, sustainability indicators have expanded the inquiry in environmental and ecological terms not evident in earlier attempts to track a community's quality of life. Earlier sets of quality-of-life indicators tended to emphasize anthropocentric social and economic considerations at the expense of environmental and ecological matters, as typified by the highly publicized case of Jacksonville, Florida which devoted only 10 percent of its 80 indicators to environmental and ecological concerns. Sustainability indicators, on the other hand, have tended to reveal a greater balance across social, economic, and environmental indicators due to the noted belief among sustainability advocates that true sustainability advances require a balanced pursuit of social, economic, and environmental sustainability. For example, 34 percent and 38 percent of the sustainability indicators in Burlington, Vermont, and Santa Monica, California are devoted to environmental considerations, respectively. Because sustainability indicators are less likely to shortchange environmental and ecological considerations than quality-of-life indicators, any incorporation of sustainability indicators into growth management initiatives might have enhanced the prospects of growth management addressing the critical matter of ecological sustainability. After all, "sustainability is at bottom *an ecological concept*" (Worster 1993: 148) and, as ecologists are apt to note, without ecological sustainability no other forms of sustainability will be possible. Sadly, spokespersons for the growth management movement have yet to acknowledge this truism, and as a result the movement has paid little attention to sustainability indicators, sustainability in general, or the critical matter of ecological sustainability in particular (Zovanyi 1998).

SMART GROWTH INITIATIVES IN THE UNITED STATES

By the 1990s growth management in America had evolved to encompass additional concerns and in the process had adopted the nomenclature of Smart Growth. This new Smart Growth movement has maintained an allegiance to the "efficiency" and "anti-sprawl" commitments demonstrated by growth management initiatives during the 1970s and 1980s. As noted in one growth management text: "Growth management is intimately associated with the achievement of more efficient urban development patterns" (Nelson and Duncan 1995: 12). This efficiency theme appears repeatedly in Smart Growth writings. Some observers have suggested that using land more efficiently constitutes a basic principle of Smart Growth (Avin and Holden 2000). A document produced by the American Planning Association identified the efficient use of land resources as one of six principles of smart development (APA 1998). Another commentator noted: "*Smart Growth* refers to development principles and planning practices that create more efficient land use and transport patterns" (Litman 2003: 2). Yet other observers contended: "The panoply of smart growth strategies includes many things, but at its core it seeks to use an area's land resources—both urbanized and raw—as efficiently as possible" (Danielsen *et al.* 1999: 12).

Smart Growth publications reveal as much of a commitment to an anti-sprawl stance as the prior commitment to efficiency in the use of land resources, which is to be expected because realizing efficiency in those terms is assumed to depend on reining in sprawl. Such a growth containment commitment to combat sprawl was a characteristic feature of earlier growth management initiatives, and the anti-sprawl bias continues to be demonstrated in Smart Growth writings. This anti-sprawl bias has been reinforced by general public opposition to sprawl, as revealed by a 2000 Pew Center opinion poll that found that of all local issues, such as crime, jobs, and education, Americans were most worried about sprawl and traffic. In that year the pace of land development, according to the U.S. Department of Agriculture, was roughly double what it was a decade earlier (Chen 2000), which compounded problems like traffic congestion and the loss of open space, and produced an interest in Smart Growth as an alternative to sprawl (Lorentz and Shaw 2000). One assessment of Smart Growth concluded: "Proponents of smart growth tout its more compact, less automobile dependent development as a superior alternative to the prevailing pattern of sprawl" (Burchell *et al.* 2000: 821). According to other analysts: "'Smart growth' is a term used to describe efforts to shape growth in a way that lessens sprawl" (Danielsen *et al.* 1999: 12). In the words of yet another observer: "Throughout the U.S., the term 'smart growth' is being adopted by groups trying to change what they regard as the undesirable impacts of 'suburban sprawl'" (Downs 2001: 20). But Smart Growth encompasses much more than a quest to realize more efficient land use patterns through the curtailment of sprawl; it also embodies a range of other sought after ends that analysts have attempted to summarize via a set of Smart Growth principles.

There have been multiple attempts to portray the tenets of Smart Growth, with contributors identifying anywhere from 5 to 14 Smart Growth principles (APA 1998, Benfield *et al.* 1999, Burchell *et al.* 2000, Downs 2001, Litman 2003, Porter 2002, Smart-Growth Network 2002). The various principles identified by these analysts may be grouped into five categories that represent the major tenets of Smart Growth: growth containment; compact, mixed-use development; multimodal transportation; protection of open space, resource lands, and the environment; and collaborative planning and decisionmaking. Except for the focus on design innovations in the "compact, mixed-use development" principle, aspects of the other four principles have been addressed by the growth management movement since its inception.

The principle of growth containment has found expression in an ongoing emphasis on urban growth boundaries to contain growth within urban growth areas. This containment of growth within designated growth areas has been considered critical to curtailing sprawl and achieving greater efficiencies in land use and transportation patterns. Growth containment has also been advocated on grounds of realizing greater efficiencies in providing public infrastructure and services. The resulting emphasis on infill development, including the use of

so-called brownfield sites in cities and suburbs, over development at the urban/suburban periphery, on so-called greenfield sites, also has been championed because it supports the revitalization of long-neglected older communities in desperate need of redevelopment. And finally, the growth containment principle has been championed because of its connection to the protection of open space, resource lands, and the environment principle. In this regard, proponents of growth management argue that concentrated development is essential to realizing the ends of open space preservation, resource lands conservation, and environmental protection of sensitive lands in outlying areas.

With respect to the multi-model transportation principle, growth management advocates have made the case against low-density, dispersed, automobile-dependent sprawl since the earliest days of the movement. They argued the case for an alternative land use pattern that would provide expanded mobility via transportation options. The early emphasis tended to center on containing growth at sufficient densities to support public transit. Over time attention shifted to "accessibility" and "connectivity," and the creation of land use patterns that would support walking and cycling in addition to options for transit and a declining emphasis on automobiles. The collaborative planning and decision making principle of Smart Growth also has undergone changes as the growth management movement has evolved. Initially, spokespersons for the movement made the case for the need to simplify the complex and time-consuming process of obtaining development approval. This call for streamlining permitting procedures for development in keeping with growth management aims was seen as a necessary and responsible antidote to the growing opposition to all development irrespective of whether it represented "dumb growth" or "smart growth." During the more recent Smart Growth era, the call has continued for streamlined review and faster project approval under a predictable, fair, and cost-effective development review process, but the collaborative planning and decisionmaking principle also has called for an inclusive decisionmaking process encompassing all stakeholders and a public-private, consensus-building process intended to achieve far more than an expedited development approval process.

Because the prior review of Smart Growth principles reveals some change in growth management concerns over time, the most significant changes have resulted from the design innovations embodied within the compact, mixed-use development principle. Although this principle only started to affect growth management practices during the Smart Growth era that began in the mid-1990s, its design elements are clearly drawn from the past and serve to promote development reminiscent of an earlier time in America. The design nomenclature of Smart Growth, which is alternatively represented by the terms "neotraditionalism," "traditional neighborhood development," or "new urbanism," is inspired by a nostalgic view of "community" that was perceived to exist in American villages, towns, and urban neighborhoods during the early decades of the 20th century. The enclaves that housed such community were characterized by compact, mixed-use development, higher densities that enhanced "walkability" and supported public transit, and active community life. These compact enclaves, typically defined by a radius of no more than a quarter of a mile, and containing a rich mix of residential and nonresidential uses, are credited with enhancing livability in a number of ways. Their human scale is said to promote access for pedestrians and bicycles, thereby reducing automobile usage. Their density is believed to create diverse options for housing, including affordable housing. Their emphasis on public spaces, such as pedestrian areas and parks, over private spaces, such as yards, gated communities, and clubs, is assumed to enhance citizen interaction and thereby achieve community identity and a sense of space. Yet other design features, such as front porches and modified street grid patterns that accommodate a variety of activities, are similarly believed to enhance neighborhood ambiance and contribute to a sense of community. All these perceived benefits have created such support for the relevance of new urbanism in the design of new developments that in the minds of many it has become equated with Smart Growth.

The most controversial aspect of the design innovations embodied in the new urbanism view of Smart Growth has undoubtedly been the call for higher densities in future developments. While growth management traditionally implied higher densities associated with the containment of growth within urban growth areas, the design emphasis of new urbanism that many equate with Smart Growth has upped the ante by calling for even higher densities within compact enclaves of development wherever they occur on the landscape, whether in urban, suburban, or exurban settings (Litman 2003: 7). Within urban settings these higher-density centers have come to be referred to as "nodes" in a "nodes and corridors" development scheme in which the higher density nodes are linked by corridors of public transit. The higher densities within both urban growth areas and their multiple, compact, mixed-use nodes are seen as essential to realizing efficiencies in land use that will permit ongoing growth accommodation without defeating other growth management ends such as conserving resource lands and protecting environmentally sensitive lands outside urban centers. Land savings associated with compact, higher density development may be illustrated by pointing out that it would take 1,000 acres to accommodate 1,000 dwelling units at 1 unit per acre, only 167 acres to accommodate those 1,000 units in townhouses built at 6 units per acre, and a mere 83 acres to accommodate the same 1,000 units at 12 units per acre in mixed-use buildings housing a couple of stories of residential units above ground-level commercial uses. Proponents of Smart Growth see prospects for endless growth accommodation under such efficient use of land, and this perspective allows them to maintain their allegiance to the growth imperative in a fashion that characterizes the entire history of the growth management movement in America. Advocates of Smart Growth have been unwilling to acknowledge that ongoing growth would inevitably nullify any short-term savings in the amount of land consumed by development and have instead continued to exhibit an optimistic, pro-growth bias.

The Pro-Growth Bias of Smart Growth Initiatives

Literature addressing the current Smart Growth avenue of growth management shows a decidedly pro-growth bias in keeping with the growth orientation of more traditional management theory and practice. That literature reveals the same

traditional view of the supposed "inevitability" of growth: "Smart growth advocates argue that while growth is inevitable, sprawl is not" (Danielsen *et al.* 1999: 12). The literature also reflects the growth accommodation orientation of earlier management writings: "A basic principle of smart growth should be to accommodate future growth, not choke it off" (Downs 2001: 25). According to another commentator, "smart growth means development that accommodates growth in smart ways" (Porter 2002: 1). That same commentator also illustrated the Smart Growth movement's pro-growth orientation in the following direct terms: "Smart growth offers a 21st-century, pro-growth path to creating livable communities" (Porter 2002: 2). The historical pro-growth bias of growth management in the United States has therefore been reinforced rather than modified during the more recent Smart Growth management era.

The Sustainability Void in Smart Growth Programs

In addition to contributing nothing to a possible reassessment of the growth management movement's pro-growth orientation, the Smart Growth movement has done little to advance sustainability concerns within growth management. Smart Growth literature does give lip service to sustainability, as in the expressed view that "a future…with smarter growth will be more prosperous as well as more environmentally sustainable and socially equitable" (Benfield *et al.* 1999: 2). The literature even claims that "Many sustainable development aims are reflected in smart-growth principles" (Porter 2002: 5). In reality, however, Smart Growth programs have largely ignored the early sustainable development focus on conserving and recycling natural resources, and to date they have paid scant attention to the current sustainable development emphasis on interrelating and balancing economic prosperity, the integrity of natural ecosystems, and social equity. Although Smart Growth literature shows some overlap with sustainable development and sustainable communities literature, in that writings in all three areas advocate compact development and reduced automobile dependency, the Smart Growth movement has demonstrated virtually no commitment to sustainability such as reducing resource consumption and waste generation or preserving natural ecosystems. The movement has not therefore moved growth management toward a greater regard for sustainability in general or ecological sustainability in particular.

ACKNOWLEDGING CURRENT GROWTH CHALLENGES

Past growth management and its current manifestation in the form of Smart Growth practices have both tended to focus on growth management strategies and techniques, with little if any regard for the magnitudes of demographic, economic, and urban growth to be managed. The rapid growth experienced during the past 50 years internationally and nationally has been accepted as a given within the management movement, rather than as something to be debated or questioned. The movement has demonstrated no awareness that more people have been added to the world's population in the last 50 years than in all the prior history of our species (Brown 2001: 19). It also has shown no interest in the fact that "growth in the world economy during the year 2000 exceeded that during the entire nineteenth century" (Brown 2001: 19). Nor has the management movement addressed the reality of urban growth rates exceeding demographic and economic growth rates globally, resulting in a projected doubling of the number of people living in cities to 5 billion between 1990 and 2025 (Hall and Pfeiffer 2000) and increasing the number of megacities of over 8 million from only 2 in 1950 to 21 in 1990 and an expected 33 in 2015 (World Resources Institute 1996). Any consideration of these dramatic increases might be expected to result in a questioning of the merit of a continued pro-growth bias in any geographical context, but the growth management movement has ignored the magnitudes being generated by growth globally as well as nationally.

Demographic Growth in the United States

Unsustainable demographic growth has certainly been demonstrated in America during the recent past. The 1990s set a record for the number of people added to the United States in a single decade, with the 33 million increase of that decade surpassing the 28 million added during the post-war, baby-boom decade of the 1950s. That growth rate, which translates into the addition of another 3.3 million individuals each year, may in growth management terms be thought of as representing the equivalent of 33 cities of 100,000 every 12 months to accommodate the increase. The wisdom of assuming that Smart Growth will make it possible to sustain these annual increases would certainly be questioned by some within the growth management movement if participants addressed and debated the numbers.

Economic Growth in the United States

Economic growth in the United States has recently rebounded from a national recession, and the wisdom of the resultant economic magnitudes being generated might also be questioned by growth-management proponents if management debates were ever to consider these numbers. The 7.2 percent economic growth rate experienced during the third quarter of 2003 would double the already enormous size of the American economy in a mere 10 years. Ten such doublings in a century under that rate of growth would yield an economy 1 thousand times larger, and another 10 doublings during a second century would expand the economy to 1 million times its present size. Admittedly, most economists do not expect a 7 percent growth rate to continue and instead speak of economic growth between 2 and 3 percent as a level capable of being "sustained." A projected rate of 4.6 percent was announced for 2004, which represents a doubling time of some 15 years. Any of these rates would yield the same absurd outcome produced by the 7 percent growth rate, generating a national economy a million times larger than the current level; it would merely take longer to reach that level under lower growth rates. In this regard proponents of growth management appear to side with neoclassical growth economists in believing that economic growth can be continued indefinitely if it is smart growth, which for economists translates into growth based on an efficient use of resources and energy. Both groups seem unwilling to consider that ongoing growth will nullify any such efficiency savings, as in the case of a 50 percent reduction in resource use or pollution generation being negated by a subsequent doubling of the economy.

Urban Growth in the United States

The magnitude of urban growth in the recent past may be illustrated by research that has documented the conversion of rural land to developed uses under ongoing urbanization and development over the past two decades. That research, conducted by the U.S. Department of Agriculture's Natural Resources Conservation Service, released in a 2001 report indicated about 34 million acres of rural land were converted to developed uses between 1982 and 2001 (U.S. Department of Agriculture, NRCS 2001). This represented the conversion of a total area about the size of Illinois over that period or the equivalent of the conversion of an area roughly the size of Vermont every 3 years. That same report pointed out that the rate of development was escalating, averaging 2.2 million acres per year during the 1990s, as opposed to 1.4 million acres per year during the 1980s. Recent research has disclosed that for the 100 largest urbanized areas in America about half of the conversion is attributable to the increase in the number of residents in those areas, while the other half is attributable to an increase in the average amount of land consumed per resident (Kolankiewicz and Beck 2001).

It also has been pointed out that most of America's metropolitan areas are adding urbanized land at a much faster rate than they are adding population. Nationwide the amount of urbanized land increased by 47 percent between 1982 and 1997, whereas the nation's population grew by only 17 percent during that period (Porter 2002: 29). These figures clearly point to a decline in densities over time in America's urbanized areas. It has been calculated that in 1920 the average density of all urbanized areas was 6,160 persons per square mile, or a little less than 10 persons per acre. By 1990 that figure had declined by over half to 2,589 persons per square mile, or about 4 persons per acre. Most striking, however, is that developments built since 1960 only average about 1,469 persons per square mile, or a little over 2 persons per acre (Benfield *et al.* 1999: 12). The Smart Growth response is urban containment with higher densities as a way of reducing the amount of land converted from rural to urban uses. Again, proponents of this strategy ignore the fact that ongoing growth will negate such savings, as in a case where the land consumption associated with 1,000 new residents would be cut in half only to have those land savings nullified by the next allotment of 1,000 new residents. The noted magnitudes of demographic, economic, and urban increases recently generated by growth are clearly incapable of being sustained indefinitely, so any short-term support for such increases must be based on the belief that there are no existent limits to growth. That belief is being challenged by mounting evidence that these limits have already been reached and surpassed.

GROWTH MANAGEMENT IN AN ERA OF EXISTENT LIMITS TO GROWTH

In 1972 the book *Limits to Growth* presented the incontrovertible axiom that infinite growth is impossible in a finite system, and based on the findings of computer modeling predicted that global limits to growth would be reached within 100 years (Meadows *et al.* 1972). The 1992 sequel to that book, *Beyond the Limits*, claimed that some of those limits had already been reached, as reflected by unsustainable resource use and pollution generation (Meadows *et al.* 1992). Other research findings reported during the 1990s supported the claim of existent limits to growth.

Global Limits to Growth

During the early 1990s the case for existent limits to growth was made on multiple grounds, including the destruction of renewable resources (Ehrlich and Ehrlich 1990), pervasive environmental constraints (Brown *et al.* 1994), loss of essential ecological life-support services (Ehrlich and Ehrlich 1991), anthropogenic climate change (Goodland 1992), lost ground in feeding an expanding global population (Brown and Kane 1994), and declining biodiversity (Wilson 1992). Reported findings such as these led to the conclusion that we had already exceeded the planet's carrying capacity before the close of the 20th century: "As a result of our population size, consumption patterns, and technology choices, we have surpassed the planet's carrying capacity" (Postel 1994: 40). The current decade has reinforced the view of surpassed limits with new findings. Ocean-related research revealed the percentage of the world's coral reefs that were severely damaged had increased from 10 to 27 percent between 1992 and 2000 (Mastny 2002), and commercial fishing had already eliminated at least 90 percent of all large ocean predators such as sharks by 2003 (Myers and Worm 2003).

The impact of an expanding human enterprise on ecosystems worldwide may be illustrated by the threats currently posed to other species by the present size of that enterprise. In 2002 the World Conservation Union reported that worldwide 25 percent of mammals, 12 percent of birds, 25 percent of reptiles, 21 percent of amphibians, and 30 percent of fish were already threatened with extinction (World Conservation Union 2002). Noted ecologists have warned that under current and accelerating trends fully 50 percent of the remaining species on the planet could be eliminated by 2050 (Ehrlich and Ehrlich 1991: 34, Wilson 1992: 278). As the scale of the human enterprise grows exponentially, ecosystems succumb to that expansion and the planet's biodiversity is being subjected to an assault that has been referred to as "biological meltdown" (Manes 1990). Conservation biologists agree the principal cause of biodiversity decline is habitat loss as expanding human activities eliminate ecosystems. The reality of declining biodiversity may be taken as further evidence humans have exceeded the planet's carrying capacity.

A case for existent limits to growth has additionally been based on the findings of ecological footprint analyses. Those analyses determine the total area of land and water required to produce the resources that a given population consumes and assimilate the wastes it generates, wherever on Earth that land and water is located. A recent assessment of the per capita footprint of humans globally revealed an average ecological footprint of some 5.7 acres, whereas the planet was found to contain only about 4.2 acres of biotically productive space per capita, resulting in a global deficit of 1.5 acres per capita (Wackernagel *et al.* 1997). These calculations reveal the current ecological footprint of humanity already exceeds the planet's ecological capacity to sustain the present size of the human enterprise. Rather than living off the annual renewable productive capacity or "income" of renewable resources, humans

are already consuming the "capital" base of those resources, which is further evidence of existent global limits to growth.

Limits to Growth in the United States

As early as 1982 research in America indicated the levels of population and economic activity of that period were damaging and depleting the nation's natural capital across a range of renewable resources (Webb and Jacobsen 1982). As elsewhere on the planet, Americans during that period were consuming the capital base of renewable resources, rather than living off their annual renewable productive capacity. Even then that behavior was translating into diminished fertility on agricultural lands, overgrazed grasslands, overharvested fisheries, depleted groundwater supplies, and truncated natural forests, which indicated the country was already experiencing existent limits to growth.

By the 1990s nationwide research on the prior loss of ecosystems in America provided further evidence that the country had already surpassed national limits to growth (Noss *et al.* 1997). That research concluded 27 ecosystem types had declined by an alarming 98 percent or more since European settlement of North America. The ongoing degradation and destruction of ecosystems and the habitats they represent is the leading cause of declining biodiversity in American as it is elsewhere on the planet. A comprehensive assessment undertaken in 1997 of some 20 thousand species of plants and animals native to the United States revealed fully a third were "of conservation concern," i.e., believed to be extinct, imperiled, or vulnerable (The Nature Conservancy 1997). The matter of habitat loss and its contribution to declining biodiversity is an issue not only in rural areas subjected to the pressures of ongoing urban expansion, but also in America's cities and suburbs. For example, habitats are lost as infill development eliminates urban and suburban forests that are logged to make way for more growth. The American Forests organization has been researching this phenomenon for more than 20 years, and its analyses have revealed dramatic declines in tree cover across American communities. A 2002 analysis of San Antonio covering the period from 1985 to 2001 discovered a 39 percent decline in the city's heavy tree cover (areas with greater than 50 percent canopy) (American Forests 2002), and a 2003 analysis of San Diego revealed a loss of 27 percent of its tree cover between 1985 and 2002 (American Forests 2003). The organization's work in the Puget Sound, Atlanta, and Chesapeake Bay regions revealed the heavy tree canopy in all those areas has declined by more than one-third in just 25 years.

Ecological footprint analyses also suggest existent limits to growth in the United States. Such research has concluded that the average American has an ecological footprint of more than 20 acres (Wackernagel and Yount 1998), which is more than 5 times the available per capita allotment of 4.2 acres of biotically productive space on a worldwide basis. Americans are only able to generate such enormous footprints by exceeding their own national ecological capacity and running national ecological deficits with other countries. These figures suggest the planet would have to be five times its present size to support the ecological load of the Earth's six billion people living American lifestyles. Rather than taking actions to moderate their per capita ecological footprints, Americans have continued to increase their footprints over recent decades. New development for decades has demonstrated "a rise in the amount of land claimed per household" (Benfield *et al.* 1999: 13). "According to the U.S. Census, the median size of a new single-family home rose 39 percent in the last twenty years—from 1,520 square feet in 1982 to 2,114 square feet in 2002" (Gann 2004: 5). Vehicles have gotten larger and fuel efficiency has declined since 1987 (Brown 2001: 101; Sawin 2004: 29), and vehicle miles traveled per capita have gone up from 3,979 miles in 1960 to 9,220 in 1995 (Benfield: 1999: 32). Instead of transitioning to a more sustainable relationship with the natural world during prior decades in response to new ecological realities, Americans have gravitated to a less sustainable position.

ECOLOGICAL SUSTAINABILITY AS THE NEW GROWTH MANAGEMENT FOCUS

The exponential expansion of the human enterprise over the course of the past 50 years has put humankind in a troubled relationship with the natural world. In 1991 the Ecological Society of America declared the existing scale of the human enterprise was "threatening the sustainability of Earth's life-support systems" (Lubchenco *et al.* 1991: 377). In 2002 an international team of ecologists, economists, and conservation biologists published a study indicating that nearly all ecosystems on the planet are shrinking in response to expanding human demands on the natural world (Balmford *et al.* 2002). Similar findings of global ecological decline are revealed by the Living Planet Index, which measures changes in forest, freshwater, and marine ecosystems, and which recently recorded a 37-percent decline in the planet's ecological health in these terms since 1970 (WWF International 2002). Ecosystems and the services they provide are under assault because the expanding scale of human activities is displacing the natural landscapes that make up ecosystems. Prior exponential growth of the human enterprise and its associated destruction and degradation of ecosystems worldwide have already "brought the world to the brink of ecological disaster" (Ehrlich and Ehrlich 1991: 285).

The human enterprise is supported by ecosystem services that provide the very foundation of the civilization fashioned from those services. Growth in demographic, economic, and urban terms is now degrading the ecological life-support services needed to sustain humankind. These forms of physical growth are responsible for the ongoing destruction and degradation of ecosystems and the associated loss of biodiversity. As long as the growth imperative driving current cultural behavior spins off population, economic, and urban growth at exponential rates, it will displace natural ecosystems at exponential rates and in turn push the number of extinctions to increase exponentially. It is time to recognize that the growth imperative driving continued growth has now become an obsolete and lethal ideology, and that humankind must abandon the growth imperative if it is to experience an indeterminate future. It must be acknowledged that our species can exist without growth, but not without sustainable ecosystems. Current ecological realities dictate that the growth imperative driving current human behavior must be replaced with the imperative of ecological sustainability. There is an urgent need to base the

quest for a sustainable future on the primacy of ecological sustainability. Since civilization is utterly dependent upon sound ecosystems that are threatened by ongoing growth, that growth must be terminated and ecological sustainability must become the new primary focus of both society at large and the current Smart Growth version of growth management.

Confronting the Smart Growth Fallacy

At present the growth management movement in the United States and its current manifestation in the form of the Smart Growth movement are impeding the essential transition from the growth imperative to an ecological imperative. Both growth management and Smart Growth advocates remain committed to the assumed wisdom of future growth. They argue that negative growth effects can be mitigated sufficiently to permit continued growth, in effect suggesting that ongoing growth can be transformed into a form of socially and environmentally benign expansion. They even condemn the idea that management activities might legitimately be directed at efforts to stop growth, asserting this would represent inefficient, unjust, and irresponsible behavior. The growth management movement remains wedded to growth accommodation practices.

Mere management of ongoing growth must be acknowledged to be an insufficient response to the ecological realities of the early 21st century. The fact that even the present size of the human enterprise is degrading the ecosystems that sustain humankind and driving other species to extinction ought to be ample proof that further growth constitutes irresponsible behavior. Instead of conceding this fact, management proponents continue to defend the ideas of balanced growth, smart growth, and even sustainable growth at a time when growth-induced ecological problems increasingly demonstrate the irresponsible nature of ongoing growth accommodation practices. It is possible to think of this pro-growth stance in terms of a growth management delusion (Zovanyi 1999), with the delusion that it will be possible to protect the environment under ongoing growth. Psychiatrists define delusion as a false, persistent belief maintained in spite of evidence to the contrary. The growth management movement represents continued support of ongoing growth in spite of mounting evidence that growth no longer represents a viable policy option or survival strategy. A point has been reached in human history where further population, economic, and urban growth must be rejected if humankind is to preserve the ecosystems and biodiversity that sustain the human enterprise.

Neither traditional growth management nor current Smart Growth advocates have shown any willingness to address sustainability concerns in general or ecological sustainability considerations in particular, and have instead focused on what they consider to be responsible accommodation of inevitable growth. This myopic perspective allows them to advance a Smart Growth fallacy, i.e., the false or mistaken idea of the possibility of sustainable growth. Growth in demographic, economic, or urban terms does not represent sustainable behavior. No amount of wishful thinking or elaborate management practices will make growth sustainable in these terms. In the end, Smart Growth is just as unsustainable as dumb growth, and over time will eventually produce the same intolerable conditions.

The No-Growth Option for Growth Management

The community plans and land use regulations produced as part of current growth management and Smart Growth initiatives typically embody prospects for absurd levels of future growth accommodation. A statewide analysis of the plans and regulations in the growth management state of Florida illustrates the point. A 1999 report revealed city and county plans and associated land use controls would permit the state to grow from its then 15 million people to over 100 million under development based on the highest density permitted by those documents (Howard 1999). Most of America's cities and counties also are vastly overzoned and overplatted. Their existing zoning districts and previously approved subdivisions of land represent enormous unrealized capacity for future land development. Current growth management and Smart Growth initiatives only increase that development capacity. These ridiculous prospects for future growth must be recognized as representing unsustainable futures for America's communities. It must also be conceded that Smart Growth will at best only slow the process of ecological decay under more efficient utilization of land, instead of advancing true ecological sustainability.

A number of strategies are available to local governments for initiating a transition to a state of nongrowth, and a case may be made for the claim that such strategies would be capable of surviving legal challenges (Zovanyi 2000). Communities could, for example, modify their comprehensive land use plans and land use regulations to reflect a research-based cap on growth, e.g., documenting that available water supplies are insufficient to support ongoing growth. They could terminate public investments in capital facility programs that make ongoing growth possible. They could also create a permanent urban growth boundary to physically limit further growth in the form of sprawl. Additionally, they could take private land out of development by acquiring it and holding it in public trust. And finally, they could act to stop the job formation that fuels further growth. The alternative to these sorts of strategies is a continuation of the unsustainable growth accommodation practices of current growth management and Smart Growth initiatives in America. Existent ecological realities call out for alternative management practices based on the primary sustainability consideration of ecological sustainability.

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