

How Are We Doing? A Look at the Practice of Planning for Sustainable Development

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Planning and Sustainable Development

The concept of sustainable development poses special challenges in the land use planning field as planning is fundamentally connected to the core themes found in the sustainability literature. These themes, often referred to as the three E's are: environmental protection, social equity, and economic development. From a local planning perspective, the themes are all affected by "what gets built and where." In the field of planning, present unsustainable land use patterns are noted as an indicator of larger societal sustainability problems. Calthorpe, for example, asserts that "[s]ettlement patterns are the physical foundation of our society and, like our society, they are becoming more and more fractured" (Calthorpe 1993:16). Land use planning is also seen as the principal forum for addressing sustainability concerns and promoting fundamental sustainable principles (Beatley 1995; Rees 1995; Thomas 1994). Rees, for example, notes:

In this increasingly fragmented and specialized world, planning is the one academic discipline and professional pursuit that explicitly attempts to be holistic or at least integrative at the level of society as a whole. At its best, planning provides a context in which the specialized knowledge of other disciplines comes together and begins to make unified sense. (Rees 1995:355)

The primary manner in which planning can bring together and put into action the themes of sustainability is in the community comprehensive plan. The comprehensive planning process and subsequent plan provide a vehicle for the embodiment of sustainable development themes on a community level.

Much of the research related to sustainable development has been abstract or descriptive (van den Bergh and van der Straatan 1994) and a common definition of the concept and framework for its implementation

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Table 1: Six Basic Principles of Sustainable Development*

Work in harmony with nature.

Land use and development activities should support the essential cycles and life support functions of ecosystems. Whenever possible, these activities should mimic ecosystem processes, rather than modify them to fit urban forms. These activities must respect and preserve biodiversity, as well as protect and restore essential ecosystem services that maintain water quality, reduce flooding, and enhance sustainable resource development.

Livable built environment.

The location, shape, density, mix, proportion, and quality of development should: enhance fit by creating physical spaces adapted to desired activities of inhabitants; encourage community cohesion by fostering accessibility among land uses; and support sense of place to ensure protection of special physical characteristics of urban forms that support community identity and attachment.

Place-based economy.

A local economy should strive to operate within natural system limits. It should not cause deterioration of the natural resource base, which serves as a capital asset for future economic development. Essential products and processes of nature should be used no more quickly than nature can renew them. Waste discharges should occur no more quickly than nature can assimilate them.

The local economy should also produce built environments that meet locally defined needs and aspirations. It should create diverse housing and infrastructure that enhance community livability and the efficiency of local economic activities.

Equity.

Land use patterns should recognize and improve the conditions of low-income populations, and not deprive them of basic levels of environmental health and human dignity. Equitable access to social and economic resources is essential for eradicating poverty and in accounting for the needs of the least advantaged.

Polluters pay.

Polluters (or culpable interests) that cause adverse community-wide impacts should be required to pay, taking into account that the polluter must bear the cost of pollution and other harms with due regard to the public interest.

Responsible regionalism.

Communities should not act simply in their own interests and should account for the consequences of their actions on others. Just as individual developers may be subject to polluters pays, a local jurisdiction has an obligation to minimize the harm it imposes on other jurisdictions in pursuit of its own objectives.

**adapted from Berke and Manta (forthcoming)*

remain elusive. There has been, as a result, a dearth of research that links the burgeoning theory to planning practice (Beatley 1995; Campbell 1996; Grant *et al.* 1996; Healey and Shaw 1997; Rees 1995). There has been some evidence that communities have begun to subscribe to the general concept of sustainable development (see, for example, PCSD 1996; CONCERN 1996). Some studies have also presented some guidelines for planning for sustainable development (see, for example, Beatley and Manning 1998; Roseland 1992).

However, little critical analysis has been done as to whether and how this new paradigm is being put into practice and whether it differs from what would generally be considered “good planning.” One study that addresses the link between sustainable development theory and planning practice is by Berke and Manta (forthcoming). This study comparatively assesses how well 20 notable¹ community comprehensive plans and 10 plans that explicitly acknowledge the concept of sustainable development promote operationalized principles that link sustainability themes to plan policies.

In an effort to assess the use of sustainable development concepts in practice, this paper descriptively explores two aspects of the Berke and Manta study. First, how well do plan policies promote principles of sustainable development through land use and growth management measures? Second, is there any difference in the strength with which principles are promoted through these measures by plans that do not explicitly acknowledge the concept of sustainable development versus those that do?

To answer these questions, the paper begins with a brief discussion of the study, including its framework for analysis, sample, and methodology. Findings on the extent to which plans promote sustainable development through growth management measures as well as specific community examples are then offered along with conclusions.

Sustainability in Plans²

The Berke and Manta study takes a first step to operationalize the basic themes of sustainable development. The formulation of a framework for analysis must take into consideration the varied conceptions of sustainability. Authors have attempted to capture the themes of sustainability in their calls for compact urban form, green markets, human scale development, open space preservation, and the like (see for example, Beatley 1995; Grant *et al.* 1996; Roseland 1992). Based on our review of the literature, we suggest six basic principles that capture the common factors of planning for sustainable development (see Table 1). The principles are related to plan goals and policies, but admittedly cannot fully account for those aspects of sustainability that stem from the plan preparation process (e.g., participation). The principles are explicitly connected to “the location, shape, scale, and quality of human settlements” (Berke and Manta forthcoming). Use of these principles in plan content analysis provides a method for assessing the strength with which plans promote the concept of sustainable development.

Sample Population

We used a sample population of 30 communities made up of 10 communities that explicitly acknowledge the concept of sustainable development in their plan, and 20 high-end plans that did not explicitly mention the concept. The sample was generated by first identifying a broad range of information sources relating to community sustainable development and urban planning activities that occurred between 1984 and 1995. The most relevant sources for our review included academic and professional journals, sustainable development newsletters, books that focus on sustainable development or principles thereof, state level and academic contacts, and a computer mail list server. We identified more than 100 community plans that potentially used the sustainable develop-

Table 2: Policy Categories of Growth Management Measures*

Policy Categories	
1. <i>Land Use Regulation</i>	4. <i>Financial Incentives</i>
Density	Impact fees
Permitted use	Reduced taxation
Special study zone	Bonus zoning
Sensitive area overlay	Exaction
Subdivision	Land trust funds
Site review	
Local environmental impact statement	
2. <i>Property Acquisition</i>	5. <i>Building Codes and Standards</i>
Transfer of development rights (TDR)	Standards for new buildings
Acquisition of land	Standards for retrofitting existing buildings
Acquisition of development rights	
Land bank	
Acquisition of development units	
3. <i>Capital Facilities</i>	6. <i>Public Education and Awareness</i>
Phased growth	Builder workshop
Concurrency	Public education program (job training)
Location of capital facilities	Info-brief mailing
Urban service boundary	
Annexation	

**from Berke and Manta (forthcoming)*

ment concept for guiding urban land use planning initiatives or had been recognized with an award from the American Planning Association. Community size parameters reduced the number of community plans in the study population to 85.³ This sample represented an extensive, though not exhaustive, search for all potential communities in those groups.

An initial analysis of the plans found that 10 incorporated the concept of sustainable development as an overarching theme or as an integral component of their vision statement. The concept was considered used if either the terminology was used explicitly or if the fundamental aspects of sustainable development were consistently referred to in the document. While the number of communities that integrated the concept of sustainability is small, the communities that did are diverse with respect to both geographics and population measures.⁴

The other 20 community plans in the sample were randomly selected from the 75 plans that remained. These communities all represented high-end plans, which were defined as plans that either won state or national awards from the American Planning Association, or were otherwise noted in the literature as high-quality plans. While these communities were also varied in their geographic and demographic characteristics, no significant differences between these groups' plans were found when their socioeconomic and mandate aspects were compared.

Plan Evaluation

The measure of plan sustainability for comparative evaluation was determined through a content analysis of plan policies. Policies were evaluated based on the sustainable development principle that they forwarded as well as the strength with which the principle was promoted. The policies were further categorized based upon the policy group and the plan element (e.g., housing,

transportation, environment, energy, urban design, economic development, or public facilities) that were utilized. Policy groups were classified by growth management measures that guide the location, density, amount, timing, and quality of development (see Table 2).

Plan policies were evaluated on a 0 to 2 scale where 0 means "does not promote the given plan principle"; 1 means "promotes the principle, but does not mandate action"; and 2 means "promotes the principle with mandatory action." For example, policies that used terminology such as "suggest" or "consider" would receive a score of 1; policies that contained words such as "require" or "must" would receive a score of 2. Higher scores, therefore, indicated more attention to a given principle and were considered more sustainable than lower scores. Scores were normalized over the maximum possible score, and then multiplied by 100. An overall sustainability score for the plan was calculated as the sum of the scores for the six principles.

Findings

Table 3 shows the plan scores by principle and total for the two community groups in the sample. The communities in the table are only representatives of the overall group, but the pattern of scores holds for the entire sample.⁵ As evidenced by the table, scores under the principles of livable built environment and, to a lesser degree, working with nature, dominate the high scores for both groups in the sample. The livable built environment principle focuses on conditions that foster a "community" environment. The dominance of this principle was not a surprising result given that the basic purpose of most plans was to foster a setting in which people want to reside, work, and recreate. Such results may indicate a reliance by communities on traditional planning perspectives; this will be further explored when we examine the policy categories that forward these principles.

Table 3: Scores of Selected Plans Promoting Sustainable Development Principles by Community*

Community	Sustainable Development Principles								Principle Totals
	Polluters Pay	Responsible Regionalism	Working with Nature	Livable Environment	Equity/Eradicating Poverty	Place-Based Economy			
Sustainable Development Integrated									
Chattanooga, TN	0	.9	2.1	3.5	3.0	2.1			11.5
Kansas City, MO	.7	.9	2.3	5.1	3.2	1.6			13.8
Lincoln, NE	1.8	1.4	3.5	8.1	1.4	0			16.1
Portland, OR	1.2	6.9	10.4	16.8	8.5	10.8			54.6
Seattle, WA	.5	3.0	2.8	6.2	1.8	2.5			16.8
Teton County, WY	.7	.2	3.7	7.1	2.8	.9			15.4
Sustainable Development Not Integrated									
Anchorage, AK	.7	1.4	6.5	6.5	1.6	.7			17.3
Charleston, SC	2.3	0	6.7	7.4	5.8	3.0			25.1
Davis, CA	.9	2.1	5.5	13.6	3.9	1.6			27.6
Honey Brook, PA	.2	0	3.0	4.8	.7	0			8.8
Jacksonville, FL	1.2	4.4	14.7	25.3	10.1	7.4			63.1
Wilmington, NC	0	0	5.1	8.8	.9	3.0			17.7
Windsor, CT	0	.2	0	6.7	.9	1.2			9.0

1. Values of 0 are not equal to 0, but are too small to be depicted by 2 significant digits
 *adapted from Berke and Mantia (forthcoming)

Also of note from this table is that the total score for Jacksonville, Florida, is highest not only within its group, but also overall. This community's high score may be due to Florida's strong state planning mandate. Research done in the area of hazards mitigation has shown that state level planning mandates can have a positive effect on plan quality (Berke and French 1994; Dalton and Burby 1994). The high score may also be the result of Jacksonville's vision statement.⁶ Like many of the plans in the sample, Jacksonville's comprehensive plan begins with a statement of community priorities and goals. The vision statement presents how the community wants to grow and/or what it wants to "look like" in the future; it is a "super-goal" that other goals and plan policies should forward. Although three key points of the vision statement address responsible regionalism and place-based economy (neither of which was a high score), five of the six specific vision elements target working with nature, constructing a livable built environment, and promoting equity and eradicating poverty themes.

Interestingly, almost half of Jacksonville's total score is from the livable built environment principle; the working with nature principle contributes an additional quarter to the total score. Portland, Oregon, has the highest overall score for the sustainability group. Its score, however, is more evenly distributed across the six principles than is Jacksonville's: with the exception of the "polluters pay" score, each principle contributed between 12 and 31 percent of the total score. Such an approach may indicate a better notion of balance between the main aspects of sustainable development. The notion of balance and integration of the themes of sustainability is a key component of the literature (see, for example, Kaiser *et al.* 1995; UN 1992).

Further examination of the sustainability scores is presented in Table 4. This table shows the comparative use of plan policy categories in forwarding sustainable development principles. In both groups,

scores for the land use regulation category of policies (e.g., permitted uses such as zoning) received the highest scores for at least four of the six principles. Financial incentives were highest for polluters pay for both groups, while capital facilities dominated the scores for the responsible regionalism principle for the integrated group. The dominance of land use regulations, as with the dominance of the livable built environment principle, may indicate that communities rely on traditional planning approaches such as zoning.

Across the principles, there is little significant difference between the scores for the plans in the two groups. Small but significant differences exist between the two groups under four of the six principles and three of the six policy categories. Land use regulations show significant differences under polluters pay, livable built environment, and place-based economy. Building code and public education policies promoting the livable built environment principle also show significant differences between the two groups. Differences appear to be the result of both high scores from Jacksonville, Florida, as well as from consistently higher scores on the traditional planning activities by the non-integrated communities. However, the most significant difference that exists between these groups is in public education policies that promote the principle of responsible regionalism. This is also the only significant difference in which the integrated communities scored higher on average than the non-integrated communities. The difference was due primarily to the activities of Chattanooga, Tennessee, Lincoln, Nebraska, and Portland, Oregon. Lincoln, for example, used public education activities to promote regional transportation and regional park system ideas.

The principle of polluters pay received the lowest scores of all principles for both groups. It was forwarded most typically through financial means involving impact fees and exactions, as well as through capital facility design and location, phased growth,

and local environmental impact statements. For example, Anchorage, Alaska, Charleston, South Carolina, and Portland, Oregon, all required an environmental impact statement that would demonstrate the expected consequences that development would have on the environmental health of the community. Other communities called for new development to pay its share of the schools and services that would be needed to support it. The plan for Davis, California, for example, states that “[c]osts should be allocated in proportion to burden incurred or benefit received, based on service demand generated by different land uses and the pro-rata cost of service each geographic area” (*City of Davis General Plan, Volume 1* 1993:2-2).

The relatively low scores of this principle are most likely due to its inherent political nature. While many citizens may favor development that pays for its impacts in some manner, local governments may not have the political will to make such demands while also trying to entice revenue-generating development. Local governments may be concerned about losing a competitive edge in the development location selection process if too many requirements are forced on potential developers. Charleston, South Carolina, was the most successful of all the sample communities at promoting the polluters pay principle. It did so primarily through the use of impact fees.

Responsible regionalism was another infrequently promoted principle. This may be due in part to the physical nature of some communities. Anchorage, Alaska, and Jackson-Teton County, Wyoming, for example, are both geographically located in a “bowl” or “hole” surrounded by mountains. Regional issues are not, therefore, as evident as they might be elsewhere. The writing of joint plans, as in Honey Brook, Pennsylvania, Jackson-Teton County, Wyoming, and New Hanover County-Wilmington, North Carolina, also made regional considerations implicit rather than explicit in many plans. Joint plans broadened the scope of the

community analysis so that extra-territorial issues became part of the planning process.

Policies that were used to promote responsible regionalism in these plans focused on neighboring and affected land uses, capital facility considerations (both in terms of management and capacity), and land acquisitions. Portland, Oregon, was most successful at promoting the principle of responsible regionalism. It did so through capital facility policies. In this case, regional thinking was most likely related to the Portland metropolitan service district and the area’s regional governance approach to growth management (DeGrove 1992). The Honey Brook, Pennsylvania, plan did an extensive job of setting a regional context, though specific policies promoting responsible regionalism were not offered. The plan presented a section on the regional setting that looks at the geographic area, population issues, and common resources, as well as other regional issues (such as the county airport, recreation, schools, and waste disposal). In addition, the plan preparation process examined the comprehensive plans of adjacent communities in order to assess the compatibility of the Honey Brook plan with respect to its neighbors.

The principles of equity and eradicating poverty and of place-based economy received scores of a similar strength in both groups. The scores were not as strong as those of working with nature or livable built environment, but they were stronger than those for responsible regionalism and polluters pay. Though forwarded by the variety of policies, equity and eradicating poverty was largely equated with affordable housing. Often this was done through the provision of incentives such as bonus zoning or general financial incentives for developers who incorporated affordable housing units in their proposals. Chattanooga, Tennessee, and Seattle, Washington, both used these approaches. Other communities such as Kansas City, Kansas, and Windsor, Connecticut, relied on the permitted use

Table 4: Comparison of Mean and Total Scores of Plan Policies Forwarding Sustainable Development Principles¹

Plan Policy Category ³	Sustainable Development Principles ²					
	Polluters Pay	Responsible Regionalism	Working with Nature	Livable Built Environment	Equity/Eradicating Poverty	Place-Based Economy
Land Use Regulations	.05 (.16)*	.32 (.45)	1.7 (2.05)	2.7 (4.1)*	.74 (.83)	.89 (1.3)*
Property Acquisition	0 (.01)	.11 (.08)	.39 (.45)	.46 (.69)	.21 (.14)	.07 (.10)
Capital Facilities	.21 (.18)	.89 (.39)	.62 (.74)	2.2 (2.5)	.48 (.53)	.55 (.71)
Financial Incentives	.37 (.23)	.05 (.02)	.39 (.39)	.59 (.94)	.59 (.48)	.29 (.23)
Building Codes & Standards	0 (0)	0 (.01)	.25 (.21)	.62 (.87)*	.44 (.15)	.18 (.09)
Public Education & Awareness	0 (0)	.12 (.01)**	.34 (.23)	.32 (.70)*	.23 (.23)	.21 (.21)
Principle Totals	.63 (.58)	1.49 (.96)	3.69(4.05)	6.89 (9.8)	2.69 (2.36)	2.19 (2.64)

1. Values of 0 are not equal to 0, but are too small to be depicted by the significant digits

2. Comparison of mean scores of integrated and not integrated plans for each principle by each plan element and principle totals show t-values that are significantly different for * p < .1; and ** p < .05.

3. Among the integrated and not integrated groups: F-values are significantly different (p < .01) for each plan policy category, but are not significantly different (p > .1) for the public education and financial incentives policies; and the F-value is significantly different (p < .01) for principle totals.

* adapted from *Berke and Mantia (forthcoming)*

aspect of land use regulations to allow for “granny flats,” multi-family units, or other non-single-family residential living options. Charleston, South Carolina, used a “scattered site affordable housing program” to avoid concentrating economically-disadvantaged citizens into pockets by integrating them throughout the community in economically-mixed neighborhoods. This program was implemented primarily through land use regulation policies. Though many communities talked generally about having a goal of such mixed neighborhoods, Charleston was able to operationalize it through its plan policies.

Land use regulation scores, specifically those for zoning and other permitted use policies, were the highest scores for promoting the principle of place-based economy. Portland, Oregon, for example, forwarded this principle through a community-based orientation in its plan. The plan called for providing adequate space in neighborhoods for retail/commercial activities through a diverse array of policies, as well as for recirculating the production and consumption patterns within the community. Portland also called for the use of “industrial sanctuaries.” These areas are “protected” as industrial centers primarily through land use regulations.

Conclusions

This paper provides an exploratory review of the manner in which sustainability principles are promoted by plan policies. While the sample size is small, which limits any statistical conclusions that may be drawn, the study does provide some useful insight for addressing the two main questions posed at the beginning of the article. The examination of how well plan policies promote principles of sustainable development shows in general that plans have fallen short of integrating the principles into plan policies. As was indicated with the scores found in Table 4, the scores for both the integrated and non-integrated

groups were very small in relation to the maximum potential score. The small scores may be due in part to some policy-principle incompatibilities: while in theory each policy category could be used to promote each sustainability principle, some pairings make more or less sense than others. The distribution of scores for both groups shows the highest scores in the traditional planning areas of land use regulations under livable built environment and working with nature principles. A balance between the principles or the integration of policies under the principles is not present to the degree called for under the paradigm of sustainable development.

The results of the content analysis also show that few significant differences exist in principle scores between those community plans that explicitly acknowledge or integrate the concept of sustainability and those otherwise high-end plans that do not. Both groups followed the same pattern of use of growth management measures in their plan policies. The inclusion of the concept of sustainability does not result in significantly different principle scores.

So what does this indicate for the state of planning for sustainable development? As noted earlier, the results of this study should be considered exploratory. Even so, the results seem to show that there remains a gap between what is called for in the sustainable development literature and what is being done in planning practice. The sustainable development paradigm offers a complex and holistic approach for the future of planning practice. It may take some time for such an approach to be adopted by planning practitioners – we can see from this review that “old planning habits die hard.” However, a concerted effort must be made to bridge the gap between the theory and practice of sustainable development if the paradigm is to be anything more than idealistic rhetoric.

Endnotes

- ¹ Notable plans are ones that have been lauded for being innovative in some way and/or have been among the American Planning Association award winning plans between 1984 and 1995.
- ² A more detailed account of the population and methodology can be found in Berke and Manta (forthcoming).
- ³ Seven large cities (population greater than 1 million) and 10 small cities (population less than 2,000) were excluded to ensure some compatibility in planning complexity and capabilities of selected communities. Additionally, the smallest communities were not likely to be capable of establishing a minimal planning program; the largest communities were not likely to plan as a single planning unit (e.g., West Philadelphia has a plan that differs from that of North Philadelphia).
- ⁴ Communities whose plans integrated the concept of sustainability into their plans represented 10 different states and had populations that varied from approximately 20,000 to 900,000 people (Berke and Manta forthcoming).
- ⁵ A complete table of scores for all communities in the sample groups can be found in Berke and Manta (forthcoming).
- ⁶ The Jacksonville, Florida, vision statement states:

The overall vision of the 2010 Comprehensive plan is to build upon the numerous assets of our community and provide a solid foundation into the 21st Century while simultaneously maintaining and enhancing Jacksonville's vibrant neighborhoods and rich natural resources by: a.) strengthening the

regional role of the City of Jacksonville . . . ; b.) strengthening Jacksonville's role as a center of high technology industries, trade, transportation, finance, [and] insurance . . . ; and by c.) encouraging and maintaining the development of Jacksonville's Central Business District . . . More specifically, it is the intent of the 2010 Comprehensive plan to encourage the most appropriate use of land, water, and resources consistent with the public interest; overcome present handicaps and deal effectively with future problems that may result from the use and development of land within the City; facilitate the adequate and efficient provision of transportation, water, sewerage, schools, parks, recreational facilities, housing, and other services; and to conserve, develop, utilize, and protect historic and natural resources within the city. Furthermore, mechanisms to facilitate intergovernmental coordination between the City, its adjacent municipalities, and regional and state agencies for planning and development activities are presented. (1-2)

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