HUMAN VS. NATURE DUALITY IN METROPOLITAN PLANNING

Emily Talen[1] and *Jason Brody*
Department of Urban and Regional Planning
University of Illinois at Urbana-Champaign

Abstract: Finding an appropriate framework for the integration of humans and "nature" is a subject that has engaged scholars in various disciplines for centuries. Most often, human environments like cities are viewed in striking contrast to the natural world, and this duality has implications for metropolitan planning practice. This paper summarizes the issue of human vs. nature duality as it relates to planning at the urban or metropolitan scale. We find that the problem of human vs. nature duality is embedded and addressed in different realms, each of which is likely to have some impact on the planning profession: environmentalism, ecology, and regionalism and sustainability. We illustrate our argument by reviewing the case of a failed development plan in the western suburbs of Philadelphia. We conclude by offering strategies for the integration of humans and nature in the context of planning. [Key words: human-nature duality, metropolitan planning, environmentalism, ecology, regionalism, sustainability.]

INTRODUCTION

Finding an appropriate framework for the integration of humans and nature is a compelling subject that has engaged scholars in various disciplines for centuries. While it is possible to view the "man-made world" as "natural" (the Hegelian view), human environments like cities are more likely in contemporary Western society to be viewed in striking contrast to the natural world. Commonly, nature is seen as providing a respite from the ills of the city, while urbanism is regarded as a necessary impingement on the natural environment. Anselm Strauss (1968) identified this division as the essential dichotomy of American life and thought. Environmental historians have dissected this division in their analyses of urban environmental history and the debate over how (and whether) cities are to be positioned within nature (Rosen and Tarr, 1994; Kellogg, 2002).

In response, there has been a great deal of rhetoric about the interdependency of human and natural realms. Lewis Mumford (1956, p. 382) proclaimed that "urban and rural, city and country, are one thing, not two things." More recently, the idea of interdependence between nature and human settlement has revolved around the notion of sustainability. In metropolitan planning, great effort has been expended in trying to make development patterns more sustainable—conceptually, this involves finding ways to overcome human vs. nature duality.

This paper summarizes the issue of human vs. nature duality as it relates to planning at the urban or metropolitan scale. We find that the problem of human vs. nature duality

[1]Correspondence concerning this article should be addressed to Emily Talen, Department of Urban and Regional Planning, University of Illinois at Urbana-Champaign, 111 Temple Buell Hall, 611 Taft Drive, Champaign, IL 61820; telephone: 217-244-9458; e-mail: talen@uiuc.edu

is embedded in different realms, each of which is likely to have some impact on the planning profession. Although we do not explore causal links, we give an example of how the division plays out in metropolitan planning practice, reviewing the case of a failed development plan in the western suburbs of Philadelphia. We conclude by offering strategies for the integration of humans and nature in the context of planning.

CONCEPTUALIZING HUMAN VS. NATURE DUALITY

Environmentalism

The discussion of how humans and nature interact occurs most often in contemporary society within the context of environmentalism. The movement gained momentum in the years following the publication of Rachel Carson's *Silent Spring* (1962), a book that documented the devastating effect of human carelessness on animal species. In the 1970s, environmental goals were institutionalized in the United States through various federal acts like the National Environmental Policy Act (1969) and the Endangered Species Act (1973). Many environmentalists subsequently sought broader changes in policy approach, away from anthropocentrism toward a more ecocentric view of human activity.

Implicit in this was a conception of nature as wild and detached from the world of humans. Historian William Cronon (1996) explored the phenomenon of separating human and natural worlds in the book *Uncommon Ground: Rethinking the Human Place in Nature*. He argued that wilderness, the "ideological underpinning" of the environmentalist movement, is a highly problematic concept because it is viewed as something wholly separate from ourselves. Even the opening line of the Union of Concerned Scientists' (1992) *Warning to Humanity* included the premise of separation; it begins: "Human beings and the natural world are on a collision course."

The fundamental problem is that this separation gives license to remain aloof from, or even evasive of, the everyday inhabited world. Cronon (1996, p. 81) stated, "By imagining that our true home is in the wilderness, we forgive ourselves the homes we actually inhabit." This sets up a "dangerous dualism" between the human and natural worlds, in which nature is only really nature when it is completely separate from ourselves. The focus on biological diversity, global change, and endangered species often have at their core the same dualism that humanity is profane and nature, as wilderness, is sacred. Such views possess the profoundly untenable paradox that the only way to save nature is for humans to not be part of it.

Obviously this cannot mean, as Cronon is quick to point out, that environmental degradation must be viewed as "natural." The problem is that the dualism sets up an obvious conflict between environmental ethics and social justice. The view that we are approaching environmental collapse—"fatalistic Malthusianism" or "absolutism of fixed limits in nature"—has been interpreted as elitist, authoritarian, and aimed at derailing a more collective, democratic response (Harvey, 2000, p. 217). So-called "deep ecologists" propose a doomsday end to unchecked human dominion over nature, in writings such as *The Population Bomb* (Ehrlich, 1968), *The Limits to Growth* (Meadows et al., 1972), or *The End of Nature* (McKibben, 1989). Contrasting this view, radical environmentalists see the problem as being rooted in a class-based, racist social structure (Bookchin, 1980).

Related to this is the phenomenon that the underlying processes of production and consumption, particularly in metropolitan areas, seem to have become detached from the world of nature. In a mall, for example, the actual processes of production (i.e., where products come from and how they are made, or even how deliveries are made) are shielded from consumers, thus driving a wedge between consumption, production, and ultimately, the natural environment (Price, 1996). As another example, in a theme park such as Sea World, a sterilized view of nature is presented, in which a benevolent corporate world is put in charge of managing nature for the human consumer (Davis, 1997).

There is also the idea that human progress runs counter to environmental goals, a view initially motivated by a critique of modernism. Karl Marx and Friedrich Engels have been critiqued as modernists who believed that human progress was tied to the control of nature. Quantitative measurement canonized by the Enlightenment transformed nature into an objective fact, a science of numbers used in "bourgeois justice and commodity exchange" (Horkheimer and Adorno, 1944, p. 4). Some see certain forms of technological advancement as accelerating the decline of nature by treating nature as something to be subdued or commodified (Commoner, 1971).

Environmentalism is now subsumed within a complex array of political views that range from "free market" environmentalism to ecofeminism, animal rights, and bioregionalism. The three-way conflict between environmentalism, economic development, and social justice—green cities, growing cities, and just cities, as Campbell (1996) referred to them—is present in all of these approaches, and each manifests a human vs. nature duality to varying degrees. Proposals include "greening the market" (Hawken, 1993), liberal environmentalism in the tradition of John Rawls (Clark, 2000), ecosocialist theory that searches for "collective conscious control by humans of their relationship with nature" (Pepper, 1993, p. 221), or the biological rooting of culture through "reinhabitation" (Alexander, 1990). In many of these applications, there remains a fundamental, lingering duality that conceptualizes an environmental crisis in human vs. nature terms.

Ecology in Human Contexts

Ecology, more than environmentalism, has been the vehicle through which views of the human and natural worlds have been conceptualized as interdependent. William Cronon's call to rethink wilderness and David Harvey's appeal to think in terms of an interconnected "web of life" as an "ongoing flow of living processes" (Harvey, 2000, p. 218) have been echoed by ecologists who recognize the need for a more balanced scientific study of the world's ecosystems. This is especially true of the "new urban ecology," an approach that seeks to understand the ecological conditions of the human habitat itself, not just its impacts on the environment (Collins et al., 2000). Because ecology considers interactions and interrelationships, it would seem to be potentially conducive to resolving human/nature dualisms. Yet contemporary urban ecologists complain that modeling human communities as integral to ecosystems has not caught on. Collins et al. (2000, p. 416) wrote in *American Scientist*: "Ecologists … have hardly rushed to the city. A mere 0.4 percent—25 of 6,157—of the papers published in nine leading ecological journals in the past five years dealt with cities or urban species."

New urban ecologists argue that certain ecological principles may be applicable to human environments and metropolitan spatial development (Gottdeiner and Feagin,

1998; Collins et al., 2000). In addition, there is a recognition that human behavior must be incorporated into urban ecosystem models (Grimm et al., 1999), and that much can be gained by studying cities as urban ecosystems (Melosi, 1999). A related endeavor, ecological design, is about seeing human development in ecological terms. Development is to be integrated with "living processes" in an effort to minimize "environmentally destructive impacts" (Van der Ryn and Cowan, 1995, p. 3). Usually, this integration is achieved by lessening the environmental impacts of human design, typically via an appropriate choice of materials, renewable energy sources, and through a keen sensitivity to ecological context. Another approach is based on landscape ecology (see especially Forman and Godron, 1986; and Steiner, 2000), where a range of ecological principles are used to produce better plans, promote conservation, and assist in land use management. For example, knowing the principles of habitat patches (size, number, location), edges and boundaries (structure, boundary shape), or corridors (barriers, connectivity) is viewed as having important implications for land use planning (Dramstad et al., 1996).

Ecological connections to metropolitan development have been used analogously. For example, some have described the fundamental problem with conventional suburban sprawl as the imposition of a destructive simplicity on a complex system (McHarg, 1969). The diversity of a healthy city is seen as being analogous to the diversity of a natural ecosystem (Jacobs, 1961). Urban economists have promoted the same idea by arguing that dense, diverse cities breed innovation, and that the resultant knowledge accumulation and spillover effects are a vital component of economic growth (Romer, 1986; Sassen, 1993; Glaeser, 2000). Separation of uses into functional zones—a current condition of metropolitan form—digresses significantly from natural systems in which interdependencies create and maintain a healthy diversity. Each element of an organized community should instead be recognized as serving a constructive or at least stabilizing role, a theme recently developed by Johnson (2001) in his book *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*.

Clearly, ecology provides some useful, heuristic analogies for the study of human environments. The question is whether ecological analogy can be used to overcome human/nature duality in planning. Such conceptualizations might help develop innovative approaches to theorizing, explaining or predicting patterns of metropolitan development. They may strengthen the connection between humans and nature by conceptualizing metropolitan development with respect to natural systems. On the other hand, they may be in danger of replicating the problems associated with the earlier efforts of human ecologists.

Regionalism and Sustainability

While many have recognized that the separation of humans from nature is a crude distinction, those working in the applied fields of environmental and ecological planning have attempted to overcome human/nature duality through the application of integrative approaches. Thus while Harvey (2000) promoted the idea that "our collective responsibilities to human nature and nature need to be connected in a far more dynamic and co-evolutionary way across a variety of spatiotemporal scales" (p. 232), many have been attempting to put these ideals into concrete form. Problematically, however, these concrete actions—from compact urban form to recycling—are sometimes also discounted as

the "residues of a utopian environmentalism" found in the "landscapes of capitalism" (Harvey, 2000, p. 231).

The application of human-nature connectedness in the context of metropolitan development began, at least in the United States, with regionalism. Before the notion of "sustainability," regionalism was an approach to metropolitan development based on ideas about human-nature linkages. The regionalism of early 20th century botanist Patrick Geddes (1915) viewed metropolitan development as dependent upon knowledge of the large-scale, regional complexities of the landscape and the human response to that landscape. However, early 20th century regionalists believed no synthesis between *existing* metropolitan development and nature was possible. This imbalance, which was explicitly outlined by MacKaye (1928) in *The New Exploration*, came to epitomize the view that large metropolitan areas were the antithesis of environmental conservation. The subordination of the urban to nature meant that the delimitation of the region was to be based on natural rather than political geographies.

The most recently applied models of regionalist human-nature integration have at their base the concept of "sustainability," the idea that humans and nature must be interconnected by balancing economic, environmental, and social needs (Daly and Cobb, 1989; Rees, 1989; Van der Ryn and Calthorpe, 1991). Sustainability is based on the idea that it is necessary to find the proper balance between human-made and natural environments, the "warp and woof that make up the fabric of our lives" (Van der Ryn and Cowan, 1995, p. 1). This is widely recognized as being necessary in order for metropolitan areas to be ecologically, socially, and economically sustainable. According to Beatley and Manning (1997), this constitutes a new brand of environmental thinking. Under the new urban ecology (Collins et al., 2000), cities are no longer viewed as necessarily detrimental, but are in fact part of the solution to environmental problems.

Sustainability involves adopting a lifestyle "within the planet's ecological means" to ensure that development does not compromise the needs of future generations, and to ensure that population growth is "in harmony with the changing productive potential of the ecosystem" (World Commission on Environment and Development, 1987, p. 9). In practical terms, concepts like "carrying capacity" promote the idea that metropolitan development should not consume resources faster than they can be renewed, or more than natural systems can process (Meadows et al., 1972), while the "ecological footprint" is used to measure sustainability by calculating the amount of resources consumed. Sustainable development requires reduction of ecological footprints by reducing levels of human consumption that do not exceed the ability of ecosystems to provide them (Wackernagel and Rees, 1996). However, the ecological footprint may be conducive to human vs. nature duality because of its emphasis on establishing a causal link between cities and accelerated global ecological decline (Rees, 1997).

These concepts have found their way into the rhetoric of metropolitan development reform, but there is a significant question about the degree to which rhetoric is being translated into actual practice. Sustainability is a concept endorsed by both economic development proponents as well as radical ecologists, and, as Campbell (1996, p. 300) pointed out, "any concept fully endorsed by all parties must surely be bypassing the heart of the conflict." Cultural theorists who study the social construction of nature have argued that sustainability is simply another version of the "recovered garden" consisting of biodegradable industries, preservation of pristine wilderness, and social justice that finally

achieves the "End Drama," a "postpatriarchal, socially just ecotopia for the postmillennial world of the twenty-first century" (Merchant, 1996, p. 156).

DUALITY IN PLANNING PRACTICE

Thus far this paper has briefly reviewed some of the key debates, research topics, and design strategies having to do with human/nature duality in the United States. A question remains as to whether these dualities have impacted metropolitan planning and its ability to establish sustainable metropolitan forms. There is some indication that, while there is a great deal of rhetoric about resolving the duality, the lack of progress on changing metropolitan development trends points to the fact that this integration has yet to take hold in more than a rhetorical or theoretical way. Given the lack of progress in the United States when it comes to sustainability in urban form, it is reasonable to question whether sustainable metropolitan development—often defined as development that is more compact and more diverse socially and economically—is affected in some way by the persistence of conceptual frameworks and models that rest on human/nature duality.

The persistence of duality is evident in the inability to implement practical ways of addressing human vs. nature dualism. For example, surrounding metropolitan areas with an impenetrable green belt is essentially an attempt to bound the human realm within nature, and is thus one approach to resolution. The idea goes back well before Ebenezer Howard's Garden Cities. Hall (1996) pointed out that 18th and 19th century theorists like Ledoux, Owen, Pemberton, Buckingham, and Kropotkin all proposed new developments limited in size and population and surrounded by an agricultural green belt. But the idea has not taken hold. In 21st century U.S. planning, there are varying opinions about the practical benefits of the bounded city (see Fishman, 2002, for a review). A major limitation is that greenbelts are politically difficult to put into place. In addition, greenbelts, in most instances, offer only a temporary spatial stay of metropolitan fragmentation (sprawl).

Some have argued that human/nature dualism is embedded in the kinds of methods planners use to evaluate development (see especially Duany and Talen, 2002; Duany and Brain, 2005). For example, conventional assessment techniques used in planning to measure the ecological impact of metropolitan development tend to favor low-density suburban development. According to conventional metrics, ecological performance is inversely correlated with human presence, and is at its lowest point at the location of greatest urban intensity (i.e., at the city center). This approach to measuring impact is limited to a certain scale, however. While it is true that water filters down to the aquifer more easily when paved surface and density is lower, the conclusions may be different at the regional scale. As Duany and Brain (2005, p. 328) argue, "maintaining low densities in order to address water quality issues has the ultimate result of spreading human impact more widely, disrupting more of the natural systems, and multiplying secondary impacts such as atmospheric pollution through increased traffic." Current environmental assessment may therefore inadvertently encourage the position that the solution to human impact is to dilute it. This position exacerbates the political problem of crafting an overarching vision that can interpret human impacts in ways that acknowledge the multidimensionality involved.

Fig. 1. Portion of the Church Farm property in Chester County, Pennsylvania.

What may be the most lucid example of human/nature duality in planning is the way in which the "greening" of human places is interpreted as something unilaterally positive for the environment, regardless of broader impacts. There may be a failure to recognize that metropolitan development patterns that appear "natural" in the suburban landscape actually disrupt natural systems. In fact, maintaining green spaces may be harmful both in direct ways (through soil compaction, irrigation, and the need for chemical treatment), as well as in indirect ways—increasing atmospheric pollution through increased automobile use caused by spreading out the urban pattern (Duany and Brain, 2005). In short, interweaving green spaces through human settlement may sometimes be more harmful than not when viewed at a larger scale. Somewhat ironically, the most environmentally sound pattern of human settlement—in some cases—may be the one with lower rather than higher levels of green space.

Case Study—The Church Farm School Property

In planning, the disconnect between the human and the natural plays out in complicated, often contradictory ways. The lengthy process of developing the Church Farm property in Chester County, Pennsylvania (Figure 1) provides a good example (primary sources for this case study are listed in the Appendix). The prospect of developing a new town on one of the largest remaining parcels of pastoral land in the area spurred a strong reaction from area residents uncomfortable with the incongruity posed by the imposition
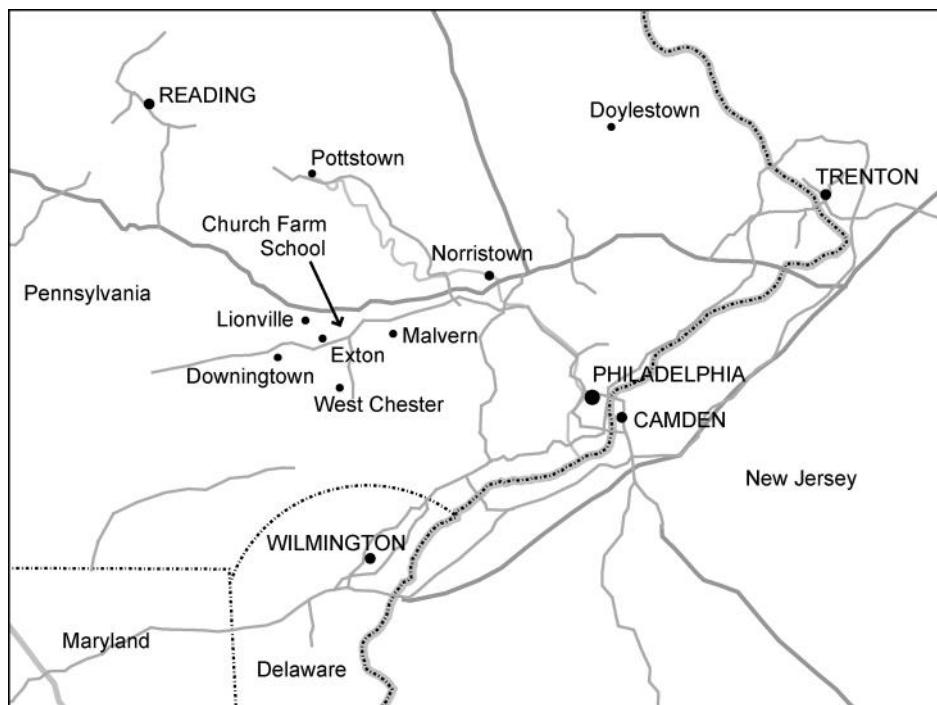
Fig. 2. Regional location of the Church Farm property.

of urbanism into a place they viewed as "natural." Development proposals served to catalyze thinking that reinforced a collective moral image of the farm property as nature, removed from the human realm.

The Church Farm School is a charitable institution located in Chester County, a suburban area west of Philadelphia (Figure 2), originally dedicated to the education of orphaned boys. Facing persistent deficits to fund its mission, the school in the 1980s sought to sell some of the 1600 1375 acres of farmland it had previously used for agricultural education. The land was desirable for its size as well as its prominent location near both route 202 and route 30, the major arterial roads spanning Philadelphia's western suburbs. The school entered into an agreement with the developer Rouse and Associates, headed by Willard Rouse, to develop the land. Rouse was one of the preeminent developers in Philadelphia, having built the tallest building in the city and having previously completed a well-regarded suburban corporate park near Church Farm School.

Rouse proposed what would have been the largest development undertaken in the county: a mini-city called Churchill that would be similar to, though smaller than, Columbia Maryland, the new town developed by his uncle, James Rouse. Churchill involved seven million square feet of office and commercial space within a mixed-use town center. Buildings were to rise as high as ten or twenty stories. Also included in the proposal were a regional mall, a private golf course, single family homes and apartments buffered by playing fields and woods with walking trails, and a 50-acre park with an artificial lake.
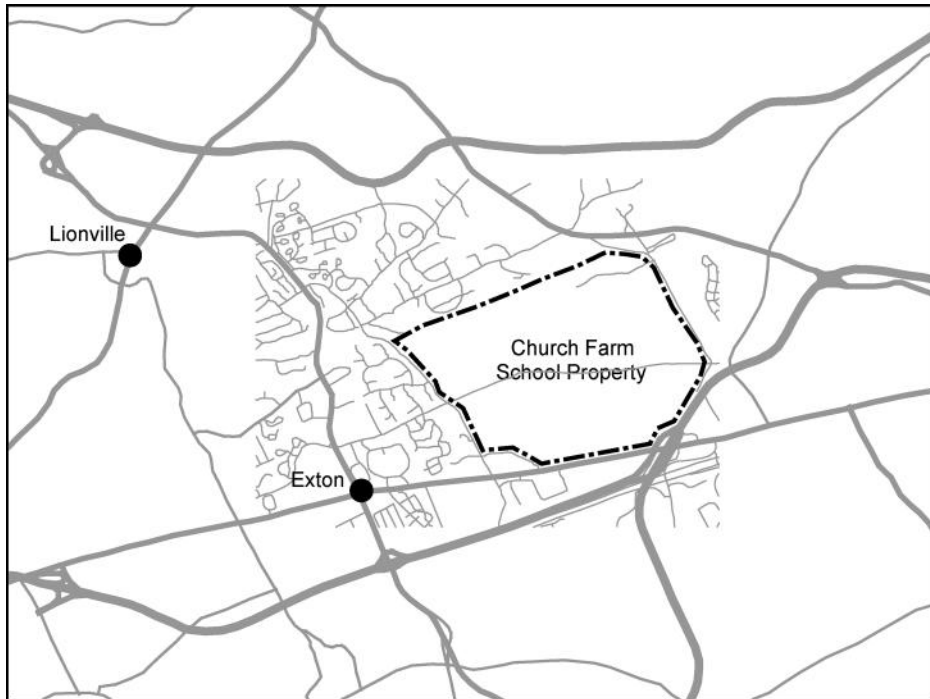
Fig. 3. Location of Church Farm property within Chester County, Pennsylvania.

Open space amounted to more than 300 acres—20% of the area—and the total develop-
ment was projected to cost more than $1 billion over 15 years. Anchoring the project
would be the headquarters for Kodak's pharmaceutical division, a coup for the business
community in the region.

The Church Farm property spanned four separate townships, with the majority of the
land in West Whiteland, 315 acres in East Whiteland, and smaller sections in Uwchlan
and Charlestown townships (Figure 3). Each of the townships had jurisdiction over devel-
opment within its borders, and in each case Rouse had to apply to get the zoning changed
for Churchill (the property had been slated for mostly multi-family use, with allowances
for 1.5 million square feet of office and commercial space). Though rezoning is not ordi-
narily an unusual process—developers often apply for approval of new projects and the
townships had continually rezoned the land as their plans evolved—Churchill presented
an extreme case. The scale of the development was significant (the property spanned fully
one quarter of West Whiteland's land area), as was its intensity. Moreover, because
Rouse's plans called for town and village centers, rezoning of the property required
whole new zoning categories.

Opposition to the project emerged in the formation of citizens groups in both West and
East Whiteland townships, with each having membership numbering in the hundreds.
The town center concept, particularly its high-rise buildings, seemed antithetical to the
rural/agricultural character of the area. Citizens' groups were concerned about traffic

generated by the development as well as its impact on water and sewer systems. One group proclaimed "Churchill will forever damage the quality of our lives" ("Montco's Gain …," 1989, p. 31). Though the plan called for re-using historic buildings on the site as community centers or restaurants, the historic preservation commission in West Whiteland opposed the plan. For their part, Rouse and Associates promised $40 million in road improvements, both on site and for the surrounding two-lane arterial roads. But the scale of the project was too large and deviated too much from the existing zoning in the townships. Zoning review dragged on, and by the time township supervisors rejected the proposal, Kodak dropped out of the project, opting for a nearby site that was easier to develop.

Following the loss of Kodak, Rouse submitted new plans for Churchill that were scaled back somewhat and responded to the concerns of residents and the township planning commissions. The regional mall was excised, as were the high-rise office buildings. Moreover, though they sought to maintain the town center design of Churchill, the firm now tailored their plans to the townships' existing zoning categories, modifying only the most intense professional/office category to allow for the multi-family residential uses needed for a mixed-use environment.

While the revised plans were initially approved by both East and West Whiteland planning commissions, opposition from citizens groups continued, and after a change in the makeup of the East Whiteland Planning Commission, the plans were again rejected. Residents questioned the need for any rezoning, accusing the developer of being motivated solely by profit. They were skeptical of Churchill's initial sewage treatment plans. Though Churchill called for a park and an open-space system, it was planned as a whole, rankling residents of East Whiteland who were asked to value open space even as it was planned for another jurisdiction. Former E. Whiteland planning commission member Ronald Knabb grumbled, "To require the people of East Whiteland to travel elsewhere makes little sense to me … Rezoning 128 acres should result in appropriate open space ordained for township use" ("Resident: Verify Data of Rouse," 1990, p. M09).

Facing continued hostility, Rouse developed an "as-of-right" plan called "Valley Crossing" that conformed to the townships' existing zoning and would require only subdivision approval. Valley Crossing would be a residential subdivision, spanning only one of the townships to make it easier to get approval. This was primarily a strategic move: existing zoning required only uniform, single-use developments. As-of-right development would have none of the open space offered in the Churchill plan, would receive only the minimum road improvements paid by the developer, and would overburden the school systems and township budgets. The as-of-right plan was designed to make Churchill look good. Greg Walters, Rouse and Associates' project manager for Churchill explained, "In our opinion, [the latest plan is] not the proper use for the site. It doesn't allow for the infrastructure improvements that must be made. There is no way to demonstrate that than to let everybody look at what that means" ("Rouse Files …," 1990, p. M24). The ploy successfully swayed some residents, who publicly supported Churchill as a best alternative given the inevitable development of Church Farms. Perhaps most importantly, the *Philadelphia Inquirer* printed an editorial supporting the mixed-use town center plan.

Nevertheless, Rouse and Associates failed to catalyze enough support for Valley Crossing to proceed, and ultimately helped spur further opposition to development of any

kind. Residents sued to reverse an initial approval, arguing that the treatment of sewage in the development would threaten a nearby creek. East Whiteland finally rejected the proposal in the spring of 1991.

The ongoing controversy over the Churchill project was well covered by the *Philadelphia Inquirer* and local newspapers. Concerned citizen groups consisting of hundreds of citizens sustained participation over a number of years, largely in opposition to the plan. In time, the leader of at least one of the activist groups was elected to the West Whiteland Board of Supervisors. The township governments evolved from being generally pro-development to being more generally anti-growth. Residents of the township envisioned preserving the Church Farm property as much as possible in its natural state, and teamed with the county government to purchase some of the land for use as a park. While Church Farm trustees supported Rouse's Churchill plan, they worked with the township. Tyler Griffen, representing the school, explained: "The school's only interest is 'having good neighbors. We selected Rouse because we felt he would be a good neighbor. But if anyone else can do as good a job as he can, we'll certainly be very happy about it'" ("Pro-Churchill …, 1991, p. A1).

Over the next couple of years the school and West Whiteland township collaborated on a new plan and new zoning for the site. As it stands now, however, the Church Farm property has been developed piecemeal into an uncoordinated mix of single-family residences, office buildings, and a large park. The centerpiece of the area is a 702-acre park called "Exton Park," funded partly by the township and partly by an open space bond issue financed by the county. The park has not yet been developed. Much of the rest of the property was downzoned to single family, large-lot housing (Fig. 4). At the western portion of the tract, there are now 190 single-family detached homes on 202 acres. On the east side of the property, there is a large office park being developed on 200 acres, called the Valley Creek Corporate Center (Figs. 5 and 6). The development will be constructed in five phases with a total of 1.75 million square feet of space. Only the first phase is currently built, and consists of two four-story and one three-story office building, totaling 257,000 square feet of floor space. Figure 6 shows the location of the office park relative to Exton Park and the Church Farm school property.

Discussion

It is possible to see, in the development of Church Farm, an example of the complicated and often implicit ways that human and natural realms are in conflict. Because the property was seen as natural, pastoral territory, Churchill seemed too incongruous. As the development application proceeded, residents did become accustomed to the prospect of some development occurring. As a West Whiteland township supervisor lamented, "A lot of people would like to see it wild open space forever, but I know that can't be done" ("Most of Church Farm …," 1999, p. A1). Yet residents were singularly focused on keeping the land pristine. They fought, first, to preserve enough land as much as possible, and second, to control the kind of development that would be allowed.

Rouse had in mind a self-contained, relatively compact human settlement. He envisioned the project as an employment center—a small, mixed use city—in response to the growth he foresaw coming to Chester County in the near future. He explained to the *Inquirer*, "The theory was very simple: There's going to be X amount of demand in this

Fig. 4. Ultimately, much of the Church Farm property was downzoned to single family large lot housing.

Fig. 5. On the east side, the Church Farm property is being developed into office buildings as part of the Valley Creek Corporate Center, shown above.

region for office/employment-center activities, so better it be on Route 202 or as close to 202 as possible than sprayed all over the county. So now, where do you put it, and try to match it with the infrastructure? That's nearly three million square feet of employment space that's going to be spread to hell and gone" ("He Set Sights High: …," 2003, p.

Fig. 6. The "master plan" of the Valley Creek Corporate Center.

A01). While Churchill undoubtedly would have altered the pastoral image of the Church Farm School property, it might have helped to staunch the tide of sprawl across the county. The intensity of development would pay for a host of improvements—in roads, sewage treatment, and open space amenities—that the township now had to pay for itself.

The obvious explanation for this is that residents found it difficult to accept growth that altered a landscape they viewed as deeply "natural." The conflict that arose presented a classic case of tension between ideas about public goods, private benefits, access to nature, and the rights of property owners. More importantly for our analysis, the development of the Church Farm property can be seen as the crudest form of human/nature duality. On one side, the developer (Rouse) seemed to have a conception of human/nature integration that sought some balance. On the other, residents appeared to have a fairly straightforward view of human presence in opposition to nature. Planners and planning commissions initially had more balanced views that allowed human presence in nature, but they ultimately yielded to resident opposition. Overall, there was little indication of Harvey's "collective responsibilities to human nature and nature" evolving in a "co-evolutionary way."

The Churchill case seemed to mark a turning point in the attitude toward growth in Chester County. Where the community once generally favored development, the scope of Rouse's proposal provoked a strong anti-growth reaction. At the same time, residents became more concerned with the character of land in the area, seeking to incorporate rural imagery in new commercial development. Having decided that new development should be focused away from the Church Farm property toward its existing suburban retail center, West Whiteland Township worked to develop stronger design standards that alluded to the agricultural heritage of the county. The most recent retail development in the area, for instance, included a Sam's Club that incorporated a fake grain silo as signage and a block of specialty stores and restaurants reminiscent of small town Main Street, albeit one surrounded by a typical suburban parking lot. Clearly the Valley Creek Corporate Center is trying to capture a rural imagery, with its isolated buildings embedded in a picturesque landscape plan (Figs. 5 and 6). Yet the result is a sprawling, automobile-dependent set of isolated buildings surrounded by large parking lots and detached from the multifunctional needs of human settlement. The designated "open space," as shown on Figure 6, is a near embodiment of the idea that nature can be disconnected and commodified.

At the county level, residents passed a $50 million bond issue to purchase development rights on agricultural land, including parts of the Church Farm School property. In addition, planners at the county wrote an innovative plan—"Landscapes"—that engendered township support in preserving natural and pastoral lands and directing growth in desirable areas. These measures have had some success, but still they mask larger problems: by Landscapes' own measures, there has been little change in the patterns of development, and sprawl continues unabated (Chester County Planning Commission, 2002).

The view of nature as wild and removed from the world of humans is clearly difficult to overcome in the context of planning for new development in locations outside of the urban core. At the periphery, the idea that nature stands apart from humans is given an explicit spatial meaning. It is conceivable that the farmland that Churchhill was intended to occupy was seen as a form of wilderness, the kind Cronon viewed as problematic

because of the implication that the only way to save nature is for humans to be removed. What this gives rise to, Cronon argued, is an indifference to the built world we currently inhabit. It is not difficult to postulate that this indifference translated, in the case of Churchhill, to a vacuum in terms of political support. If residents were already indifferent to the urban context because of a perceived separation between their everyday world and the ideal of wilderness, they would be unlikely to conceive of new development as offering anything better. If that new development is urban in intensity, it is even more unlikely to be viewed as being anything even remotely related to wilderness.

Human/nature dualism fueled the blockage of new development, even when that development was, relative to other conventional developments, environmentally responsible—compact, sited to avoid environmentally sensitive areas, intended to provide a balance between jobs and housing, and with a low land consumption per capita ratio. A few did seem to understand this relationship. Wayne Clapp, a planner for the Chester County Planning Commission, remarked: "the general philosophy of the commission is that if we want to preserve open space, we have to think about going up more than the typical height" ("West Whiteland …," 1999, p. B01). This "philosophy" did not sway local residents, however, who might have found it difficult to make the connection.

Ideally, human/nature integration should have been bolstered by the project's intention to address social issues—in this case, the provision of affordable housing. But in what appeared to be a classic contest between environmental ethics and social welfare, the inability to perceive neither environmental benefit nor social benefit stacked the cards against Churchill. The idea of holding the land as "natural" caused local officials to zone out multifamily housing (housing that might have been affordable to blue collar residents) in favor of luxury homes on large lots that was closer to a conventional perception of land preserved in a natural state. This created the perception, if not the reality, of a class-based planning approach.

If, instead, the meaning of nature could have been broadened to include affordable housing and access to employment, Churchill might have fared better. But it would have required a new type of political discourse in which social justice and environmentalism are merged. It would have required positioning the provision of housing and jobs for lower-income groups as a means of protecting the human species. Conceiving of jobs in the form of industry and office buildings in this way would have required a different kind of integration of work and nature. The current divisions between production, consumption, and the natural world would have to be overcome, striking a delicate balance between the idea that nature can be commodified or that human progress requires control of nature, and the idea that human production and consumption systems are part of the larger natural system.

Perhaps a more explicit implementation of the ideas of the "new urban ecology" (Collins et al., 2000) would have garnered greater acceptance of the Churchill development. In theory, urban ecology elevates the ecological standing of human settlements by considering that they can have ecological benefit. It may have been possible to apply ecological principles to Churchill, conceptualizing it as a human-dominated ecosystem integral to a healthy ecology. Landscape ecology may have also contributed. Incorporation of the principles of landscape ecology (e.g., use of habitat patches, edges, and boundaries in land use planning) could have been used to demonstrate greater sensitivity to natural environments, possibly opening up the feasibility of more intense human

environments coexisting within an ecological framework. But there was no indication that the evaluation of Churchill from the planner's point of view included these ecological techniques or conceptualizations. In the end, the development that was allowed to occur consisted of exactly the kind of destructive simplicity disdained by McHarg and other environmental planners (McHarg, 1969). The notion that a healthy settlement requires social and economic diversity, analogous to the diversity of a natural ecosystem, was undermined by a standard development pattern of functionally separated uses. As the land has developed, surrounded by a suburban fringe, the property lost much of the "natural" character it once had.

In terms of a regional planning connection, there was little evidence that planners were working to articulate the synthetic interrelationship between society and the natural environment that Geddes (1915) and MacKaye (1928) might have imagined. The regionalist synthesis relied on an underlying principle of unity between human and natural worlds, but it is difficult to discern what the principle at work in the Church Farm case might have consisted of other than the reduction of human presence. Human settlement in the context of its natural region seemed to be understood independently of the large-scale, regional complexities of the landscape. It is unlikely that any devices (recalling Geddes' Valley Section) were used that would have enabled such linkages to be articulated and explored in depth.

The regionalist view that large metropolitan areas represent the antithesis of environmental conservation seemed to be manifest in the gradual wearing down of urban intensity. Residents balked not merely at new development, but at the specifically urban kind suggested by "town center," "tall buildings," and "office uses," perhaps indicative in their minds of the large metropolitan city disdained by Mumford and MacKaye. The value of more intensive development in environmental terms was not an easy case to make, but it also epitomizes the problematic relation between the metropolis and nature.

Sustainability rests on the idea that the interconnection between humans and nature requires balancing economic, environmental, and social needs. This has meant, according to current environmental thinking, that cities are not to be viewed as detrimental, but instead as part of the solution to environmental problems (Beatley and Manning, 1997). The Church Farm project demonstrates the difficulty of translating this to the case of new development outside of existing cities. Development in the form of compact, multi-family housing constitutes a lower level of per capita human consumption of land resources, but this benefit was not perceived to outweigh the urban intensity being proposed. This would seem to indicate that the rhetoric of metropolitan development reform and the "new brand" of environmental thinking is having a difficult time being translated into anything other than development of vacant, uncontested, infill sites near the urban core.

CONCLUSION AND SUGGESTED STRATEGIES

What ideas can be used to overcome duality in planning for metropolitan development? In the Church Farm case, the result of tacit employment of human/nature duality was instantiation of sprawl, a development type that compromised both the human and natural realms. A legitimate question is whether new approaches to resolving human vs. nature duality in planning could remedy the problems associated with metropolitan spatial development such as sprawl and inner city degradation. If bridging the gap

between the human and the natural realms requires, as William Cronon suggested, rethinking the wilderness ideal to incorporate human activity in the natural world, it may also require understanding that social phenomena are inevitably bounded and ensconced within a natural world. In our view, strategies that handle the duality in conceptually positive ways are already in place, but it may be necessary to reorient these approaches, overcoming the human/nature duality by making biases explicit and addressing the negative consequences of duality in more overt ways.

One such strategy is to make the distinction between "natural" and "urban" areas more explicit. This may at first seem counterintuitive, but overcoming duality does not mean that there should not be clear distinctions between land designated as natural in the sense of preservation and land designated as urban in the sense of being available for human settlement. In fact, it is when these distinctions become blurred that problems arise. The ineffective blending of "urban" and "rural" essentially characterizes what is generally referred to as "suburban sprawl." Thomas Sharp recognized this problem in 1932 when he identified the root cause of "debased" town development: "Rural influences neutralize the town. Urban influences neutralize the country. In a few years all will be neutrality." (Sharp, 1932, p. 11). More recently, James Howard Kunstler (1996, p. 84) discussed the problem of sprawl in similar terms, highlighting its essential artificiality: "The subdivision is an abstraction: a metaphor. It is an assemblage of 'little cabins in the woods'.… The fact there are, say, 350 of them distributed around a tract of 175 acres only elevates the unreality of the metaphor."

Designating areas as natural (to be conserved) or urban (to be developed), if framed correctly, might force residents to consider the possibility that certain areas may be given up wholly to one or the other. Wetlands, riparian corridors, steep slopes, viewsheds, to mention a few categories, are important enough to warrant such action. Farmland preservation measures similarly shield a territory with acknowledged environmental (and cultural) values from the pressures of development. But clear delineation could also allow the recognition that both social and environmental goals can be simultaneously advanced. Historic districts can protect areas of cultural value, but targeted growth districts acknowledge that development in some areas can be valued and encouraged. Paradoxically, the clear demarcation between human and natural areas integrates the two realms by giving each a specified, legitimated hold. The strategy of delineating the human and natural would allow the unequivocal protection of natural and pastoral realms safe from compromise, but it also makes clear that there is a corresponding human claim to land development elsewhere.

A second strategy naturally evolves from the first. It would go a step further and involve a more regional outlook, delineating territory with an eye toward the needs of the larger area as a whole. This is a standard land use planning procedure, but unlike conventional practice, it could be done with an explicit focus on conceptualizing land in terms of varying degrees of human and natural intensity. This would not only mean that each realm would be viewed interdependently, but it would also mean that the local merits of human and natural realms and the actions that follow from them would be measured against the values assigned to the region as a whole. It would also focus attention on the idea that humans operate in a number of different environments, and that these environments are interdependent within a larger regional system.

The regionalist framework proposed by Patrick Geddes (1915) was one such system of regional interdependence. Planners could work to make that interdependency more practicable. In Geddes' system, a range of human activities were coupled with a range of environments needed to support them. The variations of human activities within each ecosystem were interrelated and supportive of the health of the whole system. The Transect approach being promulgated by some New Urbanists (Duany, Plater-Zyberk & Co., 2004) provides a similar conceptual framework. A typology of urban development is proposed, ranging from most intense (urban) to least developed (natural). Development is regulated in function of its particular conceptual location along an urban to natural transect. The health of the whole region is conditioned by the existence of a range of these environments, with varying levels of urban to natural intensity. Chester County's "Landscapes" plan is a similar example. It seeks to resolve the tension between the interest in accommodating the social realm and the interest in preserving natural and rural areas by making clear choices about where growth should occur and what measures should be taken to preserve a balance.

A third strategy is more procedural, and could incorporate the language of sustainability directly. It involves finding ways to bring the language of integration between the human and natural realms into each planning related decision. Within a sustainability ethic, actions are supposed to be positively consequential environmentally, socially, and economically (World Commission on Environment and Development, 1987). Changes with value in a natural sense are compared with changes with value in social and economic senses, and effort is made to combine and integrate these considerations. Bringing this way of thinking into the planning process more explicitly could help overcome the human/nature duality by integrating values/tensions/concerns through the course of each decision and each action. Sustainability challenges us to make every decision supportive, and integrative, of each realm.

Local jurisdictions in the United States have been attempting to incorporate sustainability in their activities, regulations, and development approval processes using a variety of methods (Portney, 2003). Particular actions may consist of eco-industrial park development, bicycle ridership programs, point systems for green architecture, or the use of sustainability indicators. But there may be room to expand upon the notion of resolving human/nature duality within these sustainability techniques. A procedural strategy requiring projects to demonstrate their impacts on human and natural realms could be one means. Impact statements, required in some states for local development projects, could make the consequences to human and natural realms both simultaneous and explicit. Projects are seen not as human or natural but in terms of the values they might provide to each realm.

A fourth strategy calls for creating visually explicit models of development that show, specifically, how human settlements might best be constructed with the goal of preserving the integrity of the human and natural realms. Recognizing that urban development is not a zero-sum game with tradeoffs between social and environmental goods, normative visions of development should be used to help illustrate possibilities. Development that is represented three-dimensionally can help overcome human/nature duality by conscientiously providing model patterns of development that meet human needs, and that, by their design, are also able to avoid violating designated natural areas. Churchill might have benefitted from this strategy. While the development would have had significant

local impacts, it was a relatively sustainable approach that was attempting to preserve open space and minimize land consumption. However, the positive representation of these benefits was not as explicit as it might have been. This does not mean that it is necessary to present glossy promotional material for new development, only that explicit representation is needed to help realize whatever value in overcoming the human/nature duality may exist in a given proposal for human settlement. Norms can help overcome the duality by informing positive planning and development practices. Developments that address the human/nature integration needed for the sustainable planning of metropolitan areas are, after all, physically distinct phenomena.

REFERENCES

Alexander, D., 1990, Bioregionalism: Science or sensibility? *Environmental Ethics*, Vol. 12, No. 2, 161–173.

Beatley, T. and Manning, K., 1997, *The Ecology of Place*. Washington, DC: Island Press.

Bookchin, M., 1980, *Toward an Ecological Society*. Montreal, Canada: Black Rose Books.

Campbell, S., 1996, Green cities, growing cities, just cities? Urban planning and the contradictions of sustainable development. *Journal of the American Planning Association*, Vol. 62, No. 3, 296–312.

Carson, R., 1962, *Silent Spring*. Boston, MA: Houghton Mifflin.

Chester County Planning Commission, 2002, *Chester County Landscapes Progress Report 2002*. West Chester, Pennsylvania: Author.

Clark, J., 2000, Political ecology. In M. E. Zimmerman, editor, *Environmental Philosophy: From Animal Rights to Radical Ecology*. Upper Saddle River, NJ: Prentice Hall, 343–364.

Collins, J., Kinzig, A., Grimm, N. B., Fagan, W. F., Hope, D., Wu, J., and Borer, E. T., 2000, The new urban ecology. *American Scientist*, Vol. 88, No. 5, 416–425.

Commoner, B., 1971, *The Closing Circle: Nature, Man, Technology*. New York, NY: Knopf.

Cronon, W., editor, 1996, *Uncommon Ground: Rethinking the Human Place in Nature*. New York, NY: W. W. Norton & Co.

Daly, H. E. and Cobb, J. B., Jr., 1989, *For the Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future*. Boston, MA: Beacon Press.

Davis, S. G., 1997, *Spectacular Nature: Corporate Culture and the Sea World Experience*. Berkeley, CA: University of California Press.

Dramstad, W. E., Olson, J. D., and Forman, R. T. T., 1996, *Landscape Ecology Principles in Landscape Architecture and Land-Use Planning*. Washington, DC: Island Press.

Duany, Plater-Zyberk & Co., 2004, *The Smart Code*. Miami, FL: DPZ. Available at www.dpz.com

Duany, A. and Brain, D., 2005, Regulating as if humans matter: The transect and promise of post-suburban planning. In E. Ben-Joseph and T. S. Szold, editors, *Regulating Place: Standards and the Shaping of Urban America*. New York, NY: Routledge, 293–332.

Duany, A. and Talen. E., 2002, Transect planning. *Journal of the American Planning Association*, Vol. 68, No. 3, 245–266.

Ehrlich, P., 1968, *The Population Bomb*. New York, NY: Ballantine Books.

Fishman, R., 2002, The bounded city. In K. C. Parsons and D. Schuyler, editors, *From Garden City to Green City: The Legacy of Ebenezer Howard.* Baltimore, MD: Johns Hopkins, 58–66.

Forman, R. T. T. and Godron, M., 1986, *Landscape Ecology*. New York, NY: John Wiley & Sons.

Geddes, P., 1915, *Cities in Evolution*. London, UK: Williams & Norgate.

Glaeser, E. L., 2000, Cities and ethics: An essay for Jane Jacobs. *Journal of Urban Affairs*, Vol. 22, No. 4, 473–493.

Gottdeiner, M. and Feagin, J. R., 1998, The paradigm shift in urban sociology. *Urban Affairs Quarterly*, Vol. 24, 163–187.

Grimm, N. B., Baker, L. J., and Hope, D., 1999, An ecosystem approach to understanding cities: Familiar foundations and uncharted frontiers. In A. R. Berkowitz, C. H. Nilon, and K. S. Hollweg, editors, *Understanding Urban Ecosystems: A New Frontier for Science and Education*. New York, NY: Springer, 95–114.

Hall, P., 1996, *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century* (2nd Edition). Oxford, UK: Basil Blackwell.

Harvey, D., 2000, *Spaces of Hope*. Berkeley, CA: University of California Press.

Hawken, P., 1993, *The Ecology of Commerce: A Declaration of Sustainability*. New York, NY: Harper-Business.

"He Set Sights High: Developer Pushed Region Beyond Old Limits," May 29, 2003, *Philadelphia Inquirer*, Local, A01.

Horkheimer, M. and Adorno, T., 1944, *Dialectic of Enlightenment*. New York, NY: Continuum.

Jacobs, J., 1961, *The Death and Life of Great American Cities*. New York, NY: Vintage Books.

Johnson, S., 2001, *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*. New York, NY: Scribner.

Kellogg, W. A., 2002, Nature's neighborhood: Urban environmental history and neighborhood planning. *Journal of the American Planning Association*, Vol. 68, No. 4, 356–370.

Kunstler, J. H., 1996, *Home from Nowhere: Remaking Our Everyday World for the 21st Century*. New York, NY: Touchstone.

MacKaye, B., 1928, *The New Exploration: A Philosophy of Regional Planning.* New York, NY: Harcourt, Brace, and Co.

McHarg, I., 1969, *Design with Nature*. Garden City, NY: Natural History Press.

McKibben, B., 1989, *The End of Nature*. New York, NY: Random House.

Meadows, D. H., Meadows, D. L., Randers, J., and Behrens, W., III, 1972, *The Limits to Growth*. New York, NY: Signet.

Melosi, M. V., 1999, The historical dimension of urban ecology: Frameworks and concepts. In A. R. Berkowitz, C. H. Nilon, and K. S. Hollweg, editors, *Understanding Urban Ecosystems: A New Frontier for Science and Education*. New York, NY: Springer, 187–200.

Merchant, C., 1996, Reinventing Eden: Western culture as a recovery narrative. In W. Cronon, editor, *Uncommon Ground: Rethinking the Human Place in Nature*. New York, NY: W. W. Norton & Co., 132–170.

"Montco's Gain Is Rouse's Loss Chesco Plan Still Needs Rezoning." May 10, 1989, *Philadelphia Inquirer*, Business, 31.

"Most of Church Farm Site Now Under Development," February 22, 1999, *Daily Local News*, A1.

Mumford, L., 1956, The natural history of urbanization. In W. L. Thomas, editor, *Man's Role in Changing the Face of the Earth*. Chicago, IL: University of Chicago Press, 382–398.

Pepper, D., 1993, *Ecosocialism: From Deep Ecology to Social Justice*. London, UK: Routledge.

Portney, K. E., 2003, *Taking Sustainable Cities Seriously*. Cambridge: MIT Press.

Price, J., 1996, Looking for nature at the mall: A field guide to the Nature Company. In W. Cronon, editor, *Uncommon Ground: Rethinking the Human Place in Nature*. New York, NY: W. W. Norton & Co., 186–203.

"Pro-Churchill forces see bad times in future," April 3, 1991, *Daily Local News*, A1.

Rees, W. E., 1989, *Planning for Sustainable Development*. Vancouver, BC, Canada: UBC Centre for Human Settlements.

Rees, W. E., 1997, Ecological footprints: the biophysical factor in urban sustainability. *Ekistics*, Vol. 64, No. 385, 171–181.

"Resident: Verify Data of Rouse," February 4, 1990, *Philadelphia Inquirer*, Neighbors, M09.

Romer, P., 1986, Increasing returns and long-run growth. *Journal of Political Economy*, Vol. 94, 1002–1037.

Rosen, C. M., and Tarr, J., 1994, The importance of an urban perspective in environmental history. *Journal of Urban History*, Vol. 20, No. 3, 299–310.

"Rouse Files New Plan To Fit Current Zoning," September 13, 1990, *Philadelphia Inquirer*, Neighbors, M24.

Sassen, S., 1993, *The Global City*. Princeton, NJ: Princeton University Press.

Sharp, T., 1932, *Town and Countryside: Some Aspects of Urban and Rural Development*. London, UK: Oxford UP.

Steiner, F., 2000, *The Living Landscape: An Ecological Approach to Landscape Planning*. New York, NY: McGraw-Hill.

Strauss, A. L., 1968, *The American City: A Sourcebook of Urban Imagery*. Chicago, IL: Aldine Publishing.

Union of Concerned Scientists, 1992, *World Scientists' Warning to Humanity*. Cambridge, MA: Union of Concerned Scientists. Available at http://www.ucsusa.org/

Van der Ryn, S. and Calthorpe, P., 1991, *Sustainable Communities: A New Design Synthesis for Cities, Suburbs and Towns*. San Francisco, CA: Sierra Club Books.

Van der Ryn, S. and Cowan, S., 1995, *Ecological Design*. Washington, DC: Island Press.

Wackernagel, M. and Rees, W., 1996, *Our Ecological Footprint: Reducing Human Impact on the Earth*. Gabriola Island, BC, Canada: New Society Publishers.

"West Whiteland to Meet on Higher-Buildings Issue," November 16, 1999, *Philadelphia Inquirer*, Neighbors, B01.

World Commission on Environment and Development (the Brundtland Commission), 1987, *Our Common Future*. Oxford, UK: Oxford University Press.

APPENDIX

Primary Sources for the Case Study—The Church Farm School Property
(in Chronological Order)

"Church Farm plan unveiled by Rouse: Mall, 1,800 homes, offices envisioned," December 18, 1988, *Philadelphia Inquirer*, Neighbors, C03.

"Churchill raises water questions," January 22, 1989, *Philadelphia Inquirer*, Neighbors, C37.

"Groups return to square one over Rouse's Churchill project," January 29, 1989, *Philadelphia Inquirer*, Neighbors, M08.

"Kodak's area project may fade from view: Rouse plans not developing well," April 10, 1989, *Philadelphia Inquirer*, Business, 33.

"Rouse pleads case for Churchill development," April 27, 1989, *Philadelphia Inquirer*, Neighbors, M16.

"West Whiteland group joins fight against Churchill," May 7, 1989, *Philadelphia Inquirer*, Neighbors, M23.

"Montco's gain is Rouse's loss: Chesco plan still needs rezoning," May 10, 1989, *Philadelphia Inquirer*, Business, 31.

"Rouse to revise Churchill plans," September 17, 1989, *Philadelphia Inquirer*, Neighbors, M03.

"Rouse axes controversial features in new plan," September 21, 1989, *Philadelphia Inquirer*, Neighbors, M03.

"Kodak is sued by Rouse for lost Chesco deal," October 5, 1989, *Philadelphia Inquirer*, Business, C10.

"The last word on dead ends neighboring municipalities are often at odds," October 10, 1989, *Philadelphia Inquirer*, Local, A1.

"Road plan unveiled for Churchill area," October 19, 1989, *Philadelphia Inquirer*, Neighbors, M28.

"Extensive roadwork for Rouse project," December 3, 1989, *Philadelphia Inquirer*, Neighbors, M03.

"A look forward and back," December 31, 1989, *Philadelphia Inquirer*, Neighbors, M04.

"Churchill development plan gets a final public hearing," January 14, 1990, *Philadelphia Inquirer*, Neighbors, M15.

"Resident: Verify data of Rouse," February 4, 1990, *Philadelphia Inquirer*, Neighbors, M09.

"Rouse plan advances in E. Whiteland," February 22, 1990, *Philadelphia Inquirer*, Neighbors, M03.

"Wanting to be on history's side, plans are to restore several historic buildings and incorporate them into the Churchill project," May 10, 1990, *Philadelphia Inquirer*, Neighbors, M04.

"Churchill water recycling?" May 17, 1990, *Philadelphia Inquirer*, Neighbors, M27.

"Residents doubt Rouse projections," May 20, 1990, *Philadelphia Inquirer*, Neighbors, M10.

"Rouse plan criticized at hearing 60 turn out in E. Whiteland," August 9, 1990, *Philadelphia Inquirer*, Neighbors, M03.

"Rouse files new plan to fit current zoning," September 13, 1990, *Philadelphia Inquirer*, Neighbors, M24.

"At last public hearing, Churchill again opposed," October 4, 1990, *Philadelphia Inquirer*, Neighbors, C22.

"After 4 years, a crossroads for Churchill," October 21, 1990, *Philadelphia Inquirer*, Neighbors, M03.

"Churchill development figure loses his job at Rouse," January 31, 1991, *Philadelphia Inquirer*, Neighbors, M03.

"The case for Churchill: Years of wrangling have actually improved plans for Rouse's biggest-ever development," March 10, 1991, *Philadelphia Inquirer*, Editorial, C04.

"Pro-Churchill forces see bad times in future," April 3, 1991, *Daily Local News*, A1.

"Distressing times squeeze a master builder," April 14, 1991, *Philadelphia Inquirer*, Local, A01.

"Vote is set on plan for Rouse development," August 15, 1991, *Philadelphia Inquirer*, Neighbors, M08.

"Township officials are sued," September 22, 1991, *Philadelphia Inquirer*, Neighbors, C30.

"Plan prompts fears for Chesco Creek: The Valley Creek is no longer an open sewer. Environmentalists want it to stay that way," July 22, 1992, *Philadelphia Inquirer*, Local, B03.

"County has eyes for Church Farm land," April 28, 1993, *Daily Local News*, A1.

"In the name of progress: Area residents accept imminent sale of Church Farm School land," April 14, 1994, *Daily Local News*, A1.

"Church Farm property may finally have a plan," December 11, 1998, *Daily Local News*, A3.

"Office campus plan to be aired: The plan calls for a complex of buildings on former Church Farm School land in West Whiteland Township," January 13, 1999, *Philadelphia Inquirer*, Neighbors, B01.

"Most of Church Farm site now under development," February 22, 1999, *Daily Local News*, A1.

"West Whiteland to meet on higher-buildings issue," November 16, 1999, *Philadelphia Inquirer*, Neighbors, B01.

"Exton's new look taking time to develop," June 14, 2000, *Philadelphia Inquirer*, Neighbors, B02.

"He set sights high: Developer pushed region beyond old limits," May 29, 2003, *Philadelphia Inquirer*, Local, A01.