Building Livable Places: The Importance of Landscape in Urban Land Use, Planning, and Development

Adrienne Lyles-Chockley

BUILDING LIVABLE PLACES:
THE IMPORTANCE OF LANDSCAPE IN URBAN LAND USE, PLANNING, AND DEVELOPMENT

Adrienne Lyles-Chockley[*]

Table of Contents

In the vast literature concerning urban planning and development – its problems and solutions, disasters and successes – there is an alarming absence of discussion of the non-structural space that makes up any urban environment. Yet the space that surrounds urban structures – sidewalks, streetscapes, parking lots, parks, yards, and playgrounds – plays a crucial role in the quality of life of the persons living and working within those structures. Plant materials are a powerful tool for building and modifying natural and human-made environments. Vegetation is an effective means of achieving aesthetic, safety, cost-effectiveness, environmental mitigation, and resource management goals. Given the extraordinary challenges involved with creating sustainable urban development projects, no opportunity for improving residents' lives should go unexamined. It is a grave mistake to ignore or dismiss the power of physical space to promote and discourage certain kinds of behavior. It is also a mistake to think that bricks-and-mortar building design is the most, or only, important physical development.

This Article proposes that the landscape of urban spaces is just as important as the architecture of the urban structures. Urban planners have a moral obligation to promote the economic and social well-being of inner-city residents, and landscape should be used as a tool for alleviating urban blight and for promoting urban health. Part 1 of this Article provides a brief history of landscape architecture and the relationship between landscape and social justice.   Part 2 explains why landscape is an essential consideration in public housing policy and urban planning. Part 3 examines the ways in which landscape can be used as a tool for alleviating urban blight.   Part 4 addresses land use protections that are unique to urban centers. Part 5 describes the ways in which landscape may be utilized as a tool for improving urban health and building healthy communities and individuals. Part 6 addresses the objection that prioritizing landscape in the way this Article suggests is cost-prohibitive.   The Article concludes with some policy suggestions for future urban development.

I. A HISTORY OF LANDSCAPE POLICY

Landscape architecture encompasses the art, analysis, planning, design, management, preservation, and rehabilitation of natural and built environments.[1] It is a uniquely multi-disciplinary profession (practitioners are required to obtain specialized education and professional licensure) that includes architectural design, site planning, commercial development, environmental restoration, land management, urban planning, public infrastructure, park and recreation planning, regional planning, spatial planning, and historic preservation. Landscape architects work with every kind of external space – large and small, urban and rural, with "hard" and "soft" materials.

Landscape architecture is literally rooted in social issues as expressed through physical space.[2] The social agenda for the profession was laid out by Frederick Law Olmstead (the "father" of landscape architecture) who conceived of the profession as a shared community with dedicated service to meeting the social, psychological, and physical needs of society.[3] Olmsted envisioned urban parks as instruments of social change and a means of improving living conditions in congested, polluted urban areas. Landscape architecture's commitment to social service is reiterated by the American Society of Landscape Architects (ASLA) Code of Professional Ethics[4] which sustains a number of values foundational to the profession, including the health and well-being of people and their cultures, a mutual interdependence between

---

[1] AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, http://www.asla.org/ (last visited May 31, 2009).
[2] J. William Thompson, *In Good Conscience: A San Francisco Practitioner Uses Design to Improve Conditions in the Inner City*, 89 LANDSCAPE ARCHITECTURE 126, 126 (Aug. 1999).
[3] *See generally,* Michael Hough, Cities and Natural Process (Routledge 1995); John T. Lyle, Design for Human Ecosystems (Island Press 2d ed. 1985); John T. Lyle, Regenerative Design for Sustainable Development (John Wiley &Sons Inc. 1994); *see also* Nivolai Ouroussoff, *Confronting Blight With Hope*, N.Y. Times, Feb. 24, 2005 (a current exhibit at New York's Museum of Modern Art, Groundswell, reveals the ways in which landscape architects the most potent visions of how blighted cities can be revived).
[4] AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, CODE OF PROFESSIONAL ETHICS (1998).

long-term economic progress and environmental protection, environmental and cultural integrity, responsibility to pursue sustainability, and health for both nature and humankind.[5] ASLA members are called to "serve the public interest" and to generate designs, plans, management strategies, and policy decisions that balance culture and communities. Landscape architects are charged with improving society while at the same time maintaining the intrinsic value of environmental resources.[6]

Landscape architecture profoundly influences the way we live. For example, landscape architecture laid the groundwork for the emergence of geographic information systems (GIS),[7] environmental impact statements (EIS),[8] and Environmental

---

[5] AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, DECLARATION ON THE ENVIRONMENT AND DEVELOPMENT (1993).

[6] BRUCE G. SHARKY, READY, SET, PRACTICE: ELEMENTS OF LANDSCAPE ARCHITECTURE PROFESSION PRACTICE 20-21 (John Wiley & Sons, Inc. 1994).

[7] GIS has achieved widespread use as a technology that enables the viewing and analysis of data from a geographic perspective by linking location to information (e.g., people to addresses, buildings to parcels). Most government departments and businesses rely on some sort of GIS to conduct their everyday activities; law enforcement communities use GIS as a tool for analyzing crime patterns, allocating enforcement resources, and strategic planning. GIS has become a field with legal implications as complex and difficult as the internet. *See, e.g.* GEOGRAPHICAL INFORMATION SYSTEMS: MANAGEMENT ISSUES AND APPLICATIONS (Paul A. Longely, et al. eds., John Wiley & Sons, Inc. 2d ed. 1999); *see generally* The Guide to Geographic Information Systems, http://www.gis.com (last visited Jan. 10, 2009).

[8] Environmental impact statements are reports that outline the predicted environmental effects of a particular action or project in which the Federal Government is involved and is critical in environmental regulation and litigation. Environmental impact statements are required by law and must consider the probably environmental effects of projects and programs under their control. *See* The National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(c) (2000), *available at* http://www.ehso.com/Laws_NEPA.htm. Impact statements are required to discuss the *total* impact on the environment and must consider the following: direct and indirect effects of the project: interference with other activities: energy and resource requirements: conservation and reparation potential; and ways to minimize damage to the environment. *See, e.g.,* JACOB BREGMAN, ENVIRONMENTAL IMPACT STATEMENTS (Taylor & Francis, Inc. 2d ed. 1999).

Assessment (EA),[9] all of which have had significant social and legal consequences. Landscape architects are experts in the main types of legislation used to regulate the impact of development projects on the environment: zoning regulations, environmental assessments, and environmental standards such as the National Environmental Policy Act (NEPA).[10]   NEPA's key provision is that an EIS must be prepared for all major federal "actions" significantly affecting the quality of the human environment.[11] Such "actions" include everything from building a house to developing a subdivision, laying a pipeline to planting or felling a forest. NEPA grew out of Congress' recognition of

> the profound impact of [human] activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth,

---

[9] Whereas environmental impact statements are is carried out by developers, planners, and/or organizations proposing specific development projects, environmental assessments address broad, longer-term general policies and plans. Environmental Assessment was a response to rigid zoning systems which promotes assessing each development project as it arrives on the development agenda in order to discover its impact on the surroundings. Environmental assessment is the process by which planners attempt to evaluate and predict the likelihood and extent of harm (in both qualitative and quantitative terms) that may result from an environmental hazard and provides essential information about the severity and extent of specific environmental problems for use in Environmental Protection Agency (EPA) risk management decisions. *See* The National Center for Environmental Assessment, http://cfpub.epa.gov/ncea/ (last visited Jan. 10, 2009); *see also* The National Center for Environmental Assessment, http://www.epa.gov/ncea/pdfs/brouchure.pdf (last visited Jan. 10, 2009).

[10] The purposes of the act were to "declare a national policy which will encourage productive and enjoyable harmony between man and their environment to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the nation; and to establish a Council on Environmental Quality." *Quoting* 42 U.S.C. § 4321 (2000), *see also* Pub L. No. 91-190 (codified as amended at 42 U.S.C. §§ 4321, 4331-4335, 4341 – 4347) (2000).

[11] The emphasis on Professional Indemnity Insurance forms has shifted from liability for built construction to how much Environmental Assessment (i.e., "impacts" on noise, air, and water pollution, scenery, vegetation, and recreation) a developer does.

high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of [humans]....[12]

Unfortunately, policymakers and urban planners largely fail to explore landscape design as a way of improving conditions in inner cities. In addition, a tension often exists between legitimate land use planning goals like promoting social equity, preserving open space, developing public housing, and providing necessary public infrastructure. Landscape architecture is the only profession that regularly, comprehensively, and simultaneously attends to all of these goals. Landscape architects have a profound influence on urban planning and can utilize design techniques that directly improve urban environmental conditions and remedy urban decay.

II. LANDSCAPE ARCHITECTURE IS A NECESSARY URBAN PLANNING CONSIDERATION

Landscape architects are uniquely positioned to be involved in public housing design and development because they have the best understanding of site planning and the greatest ability to coordinate a wide variety of different interests (such as architecture, traffic, utilities, and the public approval process). One of the most difficult aspects of landscape design in low-income neighborhoods is that these built landscapes often have short life-spans. Land is demolished or transferred into the hands of developers for profit, and low-income residents have little or no power to stop what city management wants to do. Fortunately, the law can intervene on behalf of these residents and empower them to have a say over their physical environments.

---

[12] Pub. L. No. 91-190 (codified as amended at 42 U.S.C. §§ 4321, 4331 – 4335, 4391-4397) (2000).

A. Landscape Architecture and Social Consciousness

        Like law, landscape architecture can be used as a tool for
promoting social justice. For example, in planning housing for the
neediest of our citizens, we must recognize that low-income
housing has been intentionally situated in urban space in a way that
dislocates the poor and constructs economic and racial segregation.
We therefore need to design spaces in a way that erodes the
traditionally stark boundaries between "public" and surrounding
housing. We must also consider the ways in which environments
affect human well-being, productivity, and happiness. Because
landscape architecture is necessarily concerned with the use,
allocation, and preservation of resources, the profession engages
questions of power and is political insofar as it influences formal
and informal social structures.
        Brown   and   Jennings   have   argued   that   landscape
architecture has failed to explicitly recognize the political nature of
its practice. In response, they suggest three models of social
justice as a foundation for developing such consciousness.[13]
Lawrence Kohlberg's model of justice reasoning proposes a series
of development stages culminating in principled reasoning based
on universal notions of human rights and abstract justice.[14]
Kohlberg's model is instructive in that it proposes that planners
focus on human rights to provide guidance in resolving moral
dilemmas in design.[15]   Carol Gilligan's model of moral
development and care focuses on how human relationships and
connections lead to moral solutions to design problems.[16] Finally,
Paulo Freire's model of the development of critical social
consciousness explores how landscape architects understand

---

[13] Kyle D. Brown & Todd Jennings, *Social Consciousness in Landscape
Architecture Education: Toward a Conceptual Framework*, 22 LANDSCAPE J.
99, 105 (2003).
[14] *See* LAWRENCE KOHLBERG, THE PSYCHOLOGY OF MORAL DEVELOPMENT:
THE NATURE AND VALIDITY OF MORAL STAGES (Harper Collins 1984).
[15] Brown & Jennings, *supra* note 13, at 105.
[16] *See generally* CAROL GILLIGAN, IN A DIFFERENT VOICE: PSYCHOLOGICAL
THEORY AND WOMEN'S DEVELOPMENT (Harvard University Press 1993).

humans as embedded in a historical social context defined by relationships of power, oppression, and privilege.[17]

Landscape architects are unique in their potential to plan with comprehensive attention to social justice. The critically conscious landscape architect realizes that domination and emancipation are embodied and enacted through social structures (institutional, economic, and ideological) that can find formal manifestation in the built and planned environment. They understand domination as a result of the structural relations between the powerful and the marginalized. For the landscape architect this entails an acknowledgement that design work either reinforces social/economic structures of domination or attempts to dismantle them.[18]

What this means in practice is that planners end the prevalent and misguided practice of reducing everything to cost-benefit analysis and instead assess design situations according to broader notions of public good and social progress. Planners must evaluate whether a situation provides an opportunity to address social problems beyond the existing physical structure. Such assessment might include regional problems such as a lack of low-income housing, displacement of politically marginalized individuals, urban sprawl, environmental justice, and "the potential role of the design process in community development and political organizing."[19] Socially conscious landscape architects proceed with design implementation only after critically examining the relationship between the client and local stakeholders (i.e., individuals who are potentially affected negatively or positively by the project and those issues it has the opportunity to address), and they proceed in dialogue with residents in a way that promotes community empowerment.

The most powerful element of this design process is the expansion of the definition of "stakeholder" to include anyone who is potentially affected by local and regional social issues whose needs could be addressed by the project – including those who have not invested economic capital into the project. These groups

---

[17] Brown & Jennings, *supra* note 13, at 106.
[18] *Id.* at 107.
[19] *Id.*

include minorities, low-income persons, and homeless individuals whose situation could be affected by the project.[20] Identifying and engaging these stakeholders is a difficult and challenging process, but it is absolutely necessary for the promotion of social justice through urban design. Engagement must take the form of genuine dialogue; public meetings are not merely opportunities to educate the affected public, but are meaningful dialogues that identify the social, economic, and political forces at play in design and that facilitate community action and organizing. In the end, this view of the landscape profession requires that practitioners not merely "do no harm" but actively do social good. Although it is important not to minimize the importance of the aesthetic of the final product, the goal is to promote social justice at the same time that high-quality design services are provided.

B. Reconciliation of environmental considerations and low-income housing development

Policies favoring environmental protection and affordable housing are often assumed to conflict with each other. Environmentalism tends to focus on intergenerational distribution (i.e., equity over the long term), while low-income housing policy concentrates intensely on existing inequities (e.g., disparities in resources for shelter, or the ability of local government to provide public services and public works).[21]

Jane Jacobs challenged, from a community standpoint, the notion that urban parks are necessarily beneficial.[22] According to Jacobs, whether a particular urban park serves as a cherished neighborhood asset or a dangerous crime zone depends largely on the mix of buildings that surround it and how this mixture affects who uses the park and when.[23] Critical of open space, Jacobs maligned urban parks because of the "waste and missed

---

[20] *Id.* at 108.
[21] Rusty Russell, *Equity in Eden: Can Environmental Protection and Affordable Housing Comfortably Cohabit in Suburbia?*, 30 B.C. ENVTL. AFF. L.REV. 437, 438 (2003).
[22] JANE JACOBS, THE DEATH AND LIFE OF GREAT AMERICAN CITIES 116-145 (Vintage 2002) (1963).
[23] *Id.*

opportunities" they imply when they go unused (not to mention their propensity for facilitating "muggings"[24]). Jacobs claimed that open spaces "further depress neighborhoods that people find unattractive ... for they exaggerate the dullness, the danger, the emptiness."[25] According to Jacobs, parks are properly used by diverse groups of people, in diverse ways, at diverse times. An urban park that is infrequently occupied, or is not surrounded by buildings that provide "eyes-on-the-park," is in danger of becoming a bleak vacuum that depresses rather than enhances adjacent communities.[26] Where there are no pedestrians, no residents, and no open businesses a park can result in an "unwatched dead zone" of urban open space.

The key to preventing disuse of open space is to intentionally design functional landscapes and to implement this design at the earliest stages of the planning process. Only in this way can buildings be successfully integrated into their surroundings such that landscape is necessarily used by residents in their ordinary lives, work, and play.

High-density public housing has been adopted by numerous countries, many of which are in Asia, where high-rises respond to the urgent need to provide mass housing at affordable prices.[27] Singapore's Housing and Development Board (HDB) is the government agency in charge of all public housing in Singapore and a paradigmatically successful public housing authority.[28] Singapore is unique and exemplary in using landscape design within an urban planning framework; landscape is used both to foster residential identity and to mitigate the harsh concrete environment of high-rise housing. Singapore's urbanization has required inward deforestation via the demolition of primary forest, swamps, and agriculture and outward reclamation of coastal areas. In response, the HDB aims to preserve the remaining open space and maximize landscape potential to improve residents' lives.

---

[24] *Id.* at 117-123.
[25] *Id.* at 145.
[26] *Id.* at 123.
[27] *See, e.g.*, Belinda Yuen & Anthony Yeh, *High-rise Living in Singapore Public Housing*, 43 URBAN STUDIES 583 (2006).
[28] *See* Singapore Housing & Development Board website, www.hdb.gov.sg (last visited May 31, 2009).

Open space is organized in a hierarchical level: towns are separated by an open space network and recreational facilities; each town and each neighborhood has its own park; each park is accompanied by a garden, square, or plaza designed to serve as the neighborhood hub; and each public housing development has landscaped open space designed specifically for social interaction.[29] Public housing parking lots are paved with bricks and covered by rain tree canopies; shelters, pergolas, and pavilions promote tranquility; and covered walkways facilitate resident interaction in all weather conditions and create a human-scale environment in the high-rise concrete jungle. The HDB has proven that landscape designed to foster social engagement and community solidarity can improve the lives of low-income residents.

C. Landscape Architecture for Crime Prevention

Public housing developments desperately need public space; in most public housing, parks are an afterthought or are eliminated altogether out of safety concerns. Although public spaces are sometimes taken over by the "wrong" members of the community (i.e., gangs), this happens only because these open spaces are poorly designed or not designed at all. When public space is deliberately linked to city amenities, and is designed in accordance with crime prevention principles, it can be a tremendously powerful tool for developing community engagement and empowerment.[30] Research indicates that the greener a building's surrounding environment is, the fewer the number of crimes that are reported there.[31] In addition, active resident involvement in greening their own neighborhoods yields

---

[29] See generally SPATIAL PLANNING FOR A SUSTAINABLE SINGAPORE (Tai-Chee Wong et al. eds., Springer 2008).

[30] Sean Michael et al., Environmental Factors Influencing Auto Burglary, 33 ENV'T AND BEHAV. 368, 384 (2001).

[31] Frances Kuo & William Sullivan, Environment and Crime in the Inner City: Does Vegetation Reduce Crime?, 33 ENV'T AND BEHAV. 343, 343 (2001).

significant social benefits including more favorable attitudes toward, and engagement in, their neighborhoods.[32]

A whole discipline has been developed to address "crime prevention through environmental design" (CPTED), and federal and local governments need to include it in design standards. CPTED is a multi-disciplinary approach to deterring criminal behavior that relies upon the ability to influence offender decisions that precede criminal acts and assumes that people are willing to intervene or report crime when crime occurs.[33] CPTED emphasizes the importance that people see and be seen continuously, which in turn reduces fear and has a deterrent effect on crime. Reflecting the belief that the decision to commit a crime is most heavily influenced by a *perceived* risk of being caught, CPTED-based design strategies emphasize enhancing the perceived risk of criminal behavior being detected and apprehended. Introduced by criminologist C. Ray Jeffery in 1971,[34] CPTED relies upon several key concepts in developing design strategies that prevent crime.

In terms of building architecture, the traditional approach to crime prevention has been "target hardening," or preventing crimes by making them difficult to commit by prohibiting unauthorized access to public or private spaces. Examples include targeted lighting, graffiti-resistant walls, skateboard-proofing of railings, and strategic placement of bollards. Landscape architecture can play a primary role in crime prevention on public housing properties by discouraging criminals from getting inside homes and by making the outdoors prohibitive of criminal behavior. Streets should be designed to discourage cut-through traffic. Paving treatments, plantings, and architectural design features can guide visitors away from private areas. Open green spaces and recreational areas should be located so that they can be observed

---

[32] Robert Sommer et al., *The Social Benefits of Resident Involvement in Tree Planting*, 20 J. OF ARBORICULTURE 170, 173-174 (1994).

[33] For a good example of environmental crime prevention strategies, *see* RICHARD SCHNEIDER & TED KITCHEN, PLANNING FOR CRIME PREVENTION: A TRANSATLANTIC PERSPECTIVE (Routledge 2002).

[34] C. RAY JEFFERY, CRIME PREVENTION THOUGH ENVIRONMENTAL DESIGN (Sage Publications Rev. ed. 1977) (1971).

by nearby homes, and pedestrian-scale street lighting should be used in high foot-traffic areas.

"Natural access control" limits the opportunity for the commission of crime by clearly differentiating between public and private space. Access control is gained by designing streets, sidewalks, building entrances, and neighborhood gateways in a way that clearly indicates public routes. Design elements discourage access to private areas by selectively placing structural elements, entrances and exits, fencing, pedestrian paths, lighting, and planting designs where they can control the flow of movement. Examples include designing clearly identifiable points of entry; using low, thorny plantings beneath ground level windows; eliminating design features that provide access to roofs; and using appropriate fencing along property lines.

"Natural surveillance" limits opportunities for crime commission by increasing the perception that people and their behaviors can be seen. Landscape architects can design the placement of physical features in a way that maximizes visibility, fosters positive social interactions, increases scrutiny of potential criminal behavior, and limits potential criminal escape routes. Examples include lighting designs that naturally draw the eye to detect unauthorized activity, strategically placed benches and ATMs, and an increased number of public transportation stops.

Finally, "territoriality" deters crime by promoting a sense of ownership of one's own space. The physical delineation of public, semi-public, and private space creates an environment where residents and non-residents are more easily identified. Natural territorial enforcement can be achieved by regularly maintaining and improving yards and streetscapes, eliminating inappropriate fencing, scheduling activities in common outdoor areas like community gardens, planning regular neighborhood clean-ups, and sharing spaces among a small number of residences.[35]

CPTED addresses every kind of development, including single-family homes, subdivisions, commercial property, parking

---

[35] Outdoor residential and commercial spaces with significant tree plantings are perceived as being more attractive, welcoming, and safe than similar spaces without trees.

lots, parks, and industrial areas. CPTED is not a panacea for crime, nor should it be seen as a replacement for traditional crime-prevention and law enforcement measures. But CPTED is an important complement to these traditional measures and serves as a tool that reduces crime while at the same time fostering community socialization and confidence.

III. LANDSCAPE AS A TOOL FOR ALLEVIATING URBAN BLIGHT

What do distressed, blighted urban areas have in common? Concrete, and lots of it. There are no treescapes, no gardens, and no lawns. If there are parks, they are non-functioning. Yet the power of the natural environment is clear, and landscape can facilitate fundamental urban environment changes and restore even the most blighted landscapes.[36] Cities therefore ought to make landscape design a priority in their development and revitalization efforts.

Paved surfaces are ubiquitous in urban areas, and residents rarely think about the impact pavement has on water quality and the health of the environment. But as land gets paved over, larger amounts of rainwater end up falling on impervious surfaces like parking lots, driveways, sidewalks, and streets rather than soaking into the soil. This creates an imbalance in the urban ecosystem and leads to a variety of problems including soil erosion, flash floods, water table depletion, and water pollution as rainwater rushing across paved surfaces picks up everything from oil and grease spills to de-icing salts and chemical fertilizers.[37]

In response, landscape architects are encouraging communities to switch to "pervious concrete," a material that is as durable as traditional concrete but that also captures rainwater in a network of voids and allows it to flow into the underlying soil. Pervious concrete roadways and parking lots can double as water retention structures and reduce or eliminate the need for traditional

---

[36] See generally Frances Kuo & Magdalena Bacaicoa, Transforming Inner City Landscapes: Trees, Sense of Safety, and Preference, 30 ENV'T & BEHAV. 28, 28 (1998).
[37] For a good discussion on previous concrete pavements, see Previous Concrete Pavements, http://www.concretenetwork.com/previous/ (last visited Jan. 10, 2009).

stormwater management systems like retention ponds. Pervious concrete also reduces the urban heat-island effect and eliminates the three main pollutants in urban runoff: sediment (dirt and debris), heavy metals (from the brake linings of cars), and hydrocarbons (from asphalt and car oil).

Social change must be led by the community, and landscape architects are the ideal facilitators for urban programs targeted at social change because they are uniquely experienced in working with various community groups (which are often at odds with one another) as well as local, state, and federal governments and agencies. Landscape architects can help communities form short-term, intermediate, and long-term plans and provide residents with immediate benefits while at the same time planting the seed, so to speak, for long-term development. Short-term plans focus on projects that can be achieved with existing resources or that demand attention due to safety concerns (e.g., a community needing increased pedestrian safety may start by upgrading signage and installing streetlights and sidewalk planters). Intermediate goals, like creating block-clubs and neighborhood watch programs as well as planning community centers and trail systems, rely more heavily on community leadership and require the cultivation of additional resources (both human and financial). Long-term goals emphasize the importance of building and sustaining community capacity through collaboration, planning, and investment; this in turn requires sustained cooperation and effort by community stakeholders.

Because long-term goals require a shared purpose, they can be especially challenging for low-income communities who have been "left behind" by society and are understandably distrusting of "outsiders" coming in to "fix" their neighborhoods. Landscape architects can help by identifying common interests and novel approaches to addressing opportunities and needs, easing division between various community groups, and leveraging capacity-building efforts. Communities should be encouraged to explore their history, to examine the events and conditions that shaped their development, and to create an identity through proactive planning and design efforts. Establishing a sense of place requires understanding and appreciating a community's relationship to

surrounding neighborhoods, to its geographic location, and to its regional context.

In the urban planning process, the power should be in the hands of the community members; they should be involved at the earliest planning stages through the use of charrettes and town meetings, suggestion and feedback solicitation, volunteer engagement, and maintenance and evaluation opportunities. Landscape architects play an essential role by establishing what the community needs are, helping communities understand their relation to, and how to comply with, state and national standards, providing examples of "best practices" used in other communities, accessing resources and establishing partnerships outside the community, and bringing and keeping together the stakeholders in network and collaboration.

A. Urban Agriculture

A tragic paradox of the current U.S. food system is hunger in the midst of plenty. Thirty-one million people – including 13 million children – live in households that experience hunger.[38] Low-income residents often skip meals, children go to school hungry, and the poor have significantly lower-quality diets than higher-income families. A 25-city survey by the U.S. Conference of Mayors reported that requests for emergency food assistance increased an average of 19% as housing costs continue to rise faster than national incomes.[39] Supermarkets have moved out of inner-city areas because of population movement to the suburbs and increased impoverishment of the residents left behind. Because many urban dwellers do not own cars, transportation to suburban food stores may be nearly impossible. Inner-city neighborhood markets are characterized by poor food selection and quality; these merchants also tend to leave perishable food on the

---

[38] *See generally* Linda Weinreb et al., *Hunger: Its Impact on Children's Health and Mental Health,* 110 PEDIATRICS (2002), http://pediatrics.aappublications.org/cgi/content/full/110/4/e41.

[39] NORTH AMERICAN URBAN AGRICULTURE COMMITTEE, COMMUNITY FOOD SECURITY COALITION, URBAN AGRICULTURE AND COMMUNITY FOOD SECURITY IN THE UNITED STATES: FARMING FROM THE CITY CENTER TO THE URBAN FRINGE 1 (2003), *available at* http://www.foodsecurity.org/urbanagpaper.pdf.

shelf longer, compromising customers' choices for nutritious meals. Ironically, at the same time that their food quality is worse, low-income residents are forced to pay more for their food than wealthier shoppers in higher-income neighborhoods.[40]

Food insufficiency (in quality or quantity) profoundly affects urban residents' quality of life. Inadequate nutrition is widely known to cause fatigue, a lack of concentration, and contributes to school and work absences; school-aged children who experience chronic hunger have higher levels of anxiety, depression, and behavior problems than children with no hunger.[41] Research indicates that the better the food security and physical and mental health of residents, the less crime, health care costs, and city services are required in a community.[42]

In its broadest sense, and with the exception of the Midwest, all agriculture is now considered to be urban or urban-influenced, meaning that it occurs in or near urban environments.[43] Urban agriculture includes the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities.[44] It takes many forms, including greenbelts around cities, farming at the city's edge, vegetable plots in community gardens, restored wetlands, greenhouses, food production in vacant inner-city lots, fish farms, farm animals at public housing sites, municipal

---

[40] *See, e.g.,* COMMUNITY FOOD SECURITY COALITION, WEAVING THE FOOD WEB: COMMUNITY FOOD SECURITY IN CALIFORNIA 13 (2002), *available at* http://www.foodsecurity.org/CFSCguide-foodweb.pdf.

[41] *See generally* MARK NORD ET AL., HOUSEHOLD FOOD SECURITY IN THE UNITED STATES, ERS FOOD ASSISTANCE AND NUTRITION RESEARCH REPORT NO. 21 (2002), *available at* http://www.ers.usda.gov/publications/fanrr21/.

[42] *See* Dorothy Blair et al., *A Dietary, Social, and Economic Evaluation of the Philadelphia Urban Agriculture Project*, 23 J. FOR NUTR. EDUC. 161, 167 (1991); Robert Ulrich & Richard Parsons, *Influences of Passive Experiences with Plants on Individual Well Being and Health, in* THE ROLE OF HORTICULTURE IN HUMAN WELL BEING AND SOCIAL DEVELOPMENT: A NATIONAL SYMPOSIUM 93-105 (Diane Relf, ed., 1991).

[43] COUNCIL FOR AGRICULTURAL SCIENCE AND TECHNOLOGY, URBAN AND AGRICULTURAL COMMUNITIES: OPPORTUNITIES FOR COMMON GROUND 1, 1-2 (2002), *available at* http://www.cast-science.org/websiteuploads/pdfs/Urban%20Ag%20Interp%20%20Summ%20FINAL%20PDF%20251362.pdf

[44] NORTH AMERICAN URBAN AGRICULTURE COMMITTEE, *supra* note 39, at 1.

compost facilities, schoolyard greenhouses, restaurant-supported salad gardens, backyard orchards, rooftop gardens, and beehives.[45] Urban agriculture is a complex system encompassing a wide spectrum of interests including recreation and leisure, economic vitality, business entrepreneurship, individual health and well-being, community health and well-being, landscape improvement, and environmental restoration and remediation.[46]

Urban food production efforts can be targeted to address the needs of urban residents who are living in poverty and as a result experience poor nutrition, hunger, and anxiety about not having enough to eat. Urban farms educate a person to control their own food and resources, which in turn manages their health and makes available the healthiest foods to the neediest individuals. Plantings can be scheduled so that food can be harvested toward the end of the month, when residents' public-assistance money is running out. Neighborhood revitalization happens when residents take pride in a community garden. Economic development is achieved when residents gain the ability to grow and market their own food, and when inner-city farmers' markets provide new opportunities for entrepreneurs and commercial farmers. Community empowerment is developed when residents have access to, and greater control over, their own food system. And inner-city residents can benefit from cleaner air and lower summer temperatures.

The San Francisco League of Urban Gardeners (SLUG) offers an exemplary model of using the natural landscape to remedy urban blight.[47] At its inception, fifty at-risk teens from the city's low-income public housing developments, in collaboration with landscape architects, the public housing residents' council, and local organizations, turned a former dump for construction waste into the city's only working farm.[48] Until May of 1995 the four-acre site was used by contractors for dumping spoil dirt and waste concrete; the site was also the repository for wrecked cars,

---

[45] Id.

[46] COUNCIL FOR AGRICULTURAL SCIENCE AND TECHNOLOGY, *supra* note 43, at 1-2.

[47] *See* Alemany Farm Homepage, http://www.alemanyfarm.org/history.html (last visited Jan. 10, 2009).

[48] Id.

refrigerators, and household garbage. SLUG interns filled several sixteen-foot dumpsters with waste, cleared the site, and broke ground for an Urban Youth Farm using recycled landscape elements from salvaged debris and materials. Flower production areas, tended by public housing residents and garden interns, now supply flowers that are sold at farmers' markets and health food stores as part of SLUG's entrepreneurial outreach.

SLUG's executive director, landscape architect Mohammed Nuru, assists local youth (many of whom have histories of drug, gang, and crime involvement and lack any previous legitimate employment) transform their physical environment into a garden paradise of vegetables and herbs, hundreds of fruit trees, and flowers. At the same time, teens are trained in landscape planning and construction, entrepreneurial and job skills, culinary skills, science, finances, and marketing. Interns are trained in soil preparation, large-scale composting, irrigation systems, and plant propagation, and they learn important lessons about work, responsibility, and care. The program continues to use the connection between people and plants to turn youth away from crime and despair and to grow in them a solid hope for their future.

The TreeFolks urban orchard program in Austin, Texas provides a link between planting trees and growing food by partnering with local groups to install ecologically sound urban orchards on public land throughout the metropolitan area.[49] Groves of fruit and nut trees serve as outdoor classrooms for hundreds of residents, educating them about organic principles, fruit culture, tree care, and micro-enterprise. The program encourages residents to grow fresh food for themselves (promoting health) and for sale (promoting self-sufficiency). Residents are provided with all of the tools and materials necessary for planting and caring for the trees, including classes for skill-development. Each program participant is provided three trees plus mulch, educational materials, quarterly training assistance, and ongoing technical assistance. Austin's Sustainable Food Center benefits residents with community and youth gardens, neighborhood farm stands, cooking and nutrition education classes, and a farmer's

---

[49]   *See*   Urban   Orchard   Program, http://www.treefolks.org/prog_urban_orchard.asp (last visited Jan. 10, 2009).

market.[50] Food from the 'Hood (FFTH), the nation's first student-managed natural food products company, was created in response to the Los Angeles social uprising in 1992. The program combines work-based entrepreneurial and skills training, academic tutoring, life skills development, and practical business experience.[51]

Urban agriculture is an alternative to vacant city lots that has immediate and far-reaching benefits; people are normally surprised by how much food can be produced on the small plots scattered around inner-cities. Rooftops typically comprise at least 30% of a city's total land area and offer prime space for food production with the added benefits of reduced energy consumption and decreased greenhouse gas emissions.[52] Urban agriculture techniques include rooftop gardening, which decreases air pollution and reduces energy costs,[53] and indoor farming techniques that can yield four to six times the crop production of traditional outdoor farming.[54] For example, The Food Project in Boston, Massachusetts manages three urban agriculture sites as well as a rooftop garden[55] which contribute to nearly a quarter-million pounds of foods grown each season.[56] One-half of all vegetables consumed in Havana, Cuba are grown in city farms and

---

[50]   *See   The   Sustainable   Food   Center,*
http://www.sustainablefoodcenter.org/default.asp (last visited Jan. 10, 2009).
[51] *See* Food from the Hood, http://www.foodfromthehood.com/2004-2005/food/Home/home.htm (last visited Jan. 10, 2009).
[52] Luke Garnham, *Green Roofs and the Promise of Urban Agriculture*, 4 GREEN ROOF INFRASTRUCTURE MONITOR 17, 18 (2002), *available at* http://www.greenroofs.org/resources/GRIM-Fall2002.pdf.
[53] *See* U.S. Environmental Protection Agency, Heat Island Effect: Green Roofs, http://www.epa.gov/heatisland/mitigation/greenroofs.htm (last visited Jan. 10, 2009).
[54] DICKSON DESPOMMIER & ERIC ELLINGSEN, THE VERTICAL FARM: THE SKY-SCRAPER AS VEHICLE FOR A SUSTAINABLE URBAN AGRICULTURE 3 (2008), *available   at* http://www.ctbuh.org/Portals/0/Repository/T7_DespommierEllingsen.b8a44415-acfe-44b7-9d2d-c31c028f88ea.pdf.
[55]   The   Food   Project,   Sustainable   Agriculture,
http://www.thefoodproject.org/agriculture/index.asp (last visited May 31, 2009).
[56] The Food Project, http://www.thefoodproject.org/about/index.asp (last visited Jan. 10, 2009).

gardens.[57] Singapore has 10,000 urban farmers who produce 80% of the poultry and 25% of the vegetables consumed there.[58]

Closely related to urban agriculture is urban forestry, the act of caring for the natural environment through the planting and management of trees on public and private land, along streets, in residential areas, parks, commercial and industrial developments, and open spaces.
Benefits of the urban forest include increased property values, decreased energy costs, improved air and water quality, reduced stormwater runoff, reduced noise levels[59], improved consumer behavior, and the creation of buffer zones and wildlife habitat.[60]

The value of houses in neighborhoods with trees is usually higher than in neighborhoods without trees; neighborhood green spaces typically increase the value of properties located nearby.[61] Trees reduce heating and cooling costs by shading buildings, acting as windbreaks, and cooling the air through the evaporative process of transpiration.[62] Trees reflect and absorb solar radiation before it heats the dense building and pavement materials of the

---

[57] J. Friedrich, *What Is Possible in Urban Farming? Learn from Cuba!*, COMMUNITY FOOD SECURITY NEWS VOL. 13 (2000).

[58] UNITED NATIONS DEVELOPMENT PROGRAMME, URBAN AGRICULTURE: FOOD, JOBS, AND SUSTAINABLE CITIES (1996).

[59] *See* RICHARD HARRIS, ARBORICULTURE: INTEGRATED MANAGEMENT OF LANDSCAPE TREES, SHRUBS, AND VINES (Prentice Hall 4th ed. 2003) (1992).

[60] Buffer zones are barriers between conflicting land uses or between development and important community resources that protect sensitive lands from the negative impacts of development. S*ee generally* GINA BONSIGNORE, DESIGN CENTER FOR AMERICAN URBAN LANDSCAPE: EFFECTS ON WATER AND CLIMATE, DESIGN BRIEF 3 (2003).

[61] *See* M. Correll et al., *The Effects of Greenbelts on Residential Property Values: Some Findings on the Political Economy of Open Space*, 54 LAND ECON. 207 (1967); D.J. Morales, *The Contribution of Trees to Residential Property Value*, 6 J. OF ARBORICULTURE 305 (1980); J. Kitchen & W. Hendon, *Land Values Adjacent to an Urban Neighborhood Park*, 43 LAND ECON. 357 (1967).

[62] *See* E. Gregory McPherson, *Benefits and Costs of Tree Planting and Care in Chicago, in* E. GREGORY MCPHERSON, CHICAGO'S URBAN FOREST ECOSYSTEM: RESULTS OF THE CHICAGO URBAN FOREST CLIMATE PROJECT (McPherson et al. eds., 1994); DJ Nowak, *Urban Forest Structure and the Functions of Hydrocarbon Emissions and Carbon Storage*, in PROCEEDINGS OF THE FIFTH NATIONAL URBAN FORESTRY CONFERENCE, 48, 49-51 (P.D. Rodbull ed., 1992).

city.[63] They also improve air quality by absorbing and reducing airborne pollutants, reducing wind speed so that heavy particles settle out, and reducing the level of carbon dioxide in cities.[64] Trees improve water quality by preventing soil erosion and by reducing stormwater runoff containing fertilizers, pesticides, oil, and raw sewage.

Most important, trees offer significant social benefits. They improve community image and attract customers to businesses by sending positive messages about the appeal of a commercial area, the quality of products there, and the kind of service a customer can expect.[65] Trees also foster a sense of community and belonging.[66] In fact, research shows that less violence occurs in urban public housing where there are trees.[67] Trees and other vegetation are also proven to have therapeutic and rehabilitative power. One study of recuperation rates after surgery found that patients whose windows offered a view of a wooded landscape recovered faster and with less medicine than those patients whose views included only brick walls.[68]

IV. PARK CREATION AND OPEN SPACE PROTECTION

Urban areas require special land use protections due to their scarcity of natural resources and open space. Cities struggle to

---

[63] See Maryland Department of Natural Resources, Trees Reduce Air Pollution, http://www.dnr.state.md.us/forests/publications/urban2.html (last visited Jan 10, 2009).

[64] See HARRIS, supra note 59; David Nowak, Air Pollution Removal by Chicago's Urban Forest, in E. GREGORY MCPHERSON, CHICAGO'S URBAN FOREST ECOSYSTEM: RESULTS TO THE CHICAGO URBAN FOREST CLIMATE PROJECT (1994).

[65] KATHY L. WOLF, TREES IN BUSINESS DISTRICTS: POSITIVE EFFECTS ON CONSUMER BEHAVIOR! (1998), available at http://www.cfr.washington.edu/research.envmind/CityBiz/Biz3Ps-FS5.pdf.

[66] See J. F. Dwyer et al., The Significance of Urban Trees and Forests: Toward a Deeper Understanding of Values, 17 J. OF ARBORICULTURE 276 (1991).

[67] W. C. Sullivan & F.E. Kuo, Do Trees Strengthen Urban Communities, Reduce Domestic Violence?, FORESTRY REPORT R8-FR 56 (Jan. 1996), available at http://www.paluc.org/pdfs/sprawl/health/sprawl_do_trees.pdf.

[68] R.S. Ulrich, View Through a Window May Influence Recovery from Surgery, 224 SCI. 420 (1984)

manage vacant lots, pocket parks, and other small open spaces[69] which are often trash-strewn, overgrown eyesores and nests for drugs. This neglect is a powerful symbol of a neighborhood's decline. Traditionally, cities avoid assuming title to abandoned or tax delinquent properties in the hope of somehow encouraging re-use by private homeowners. Yet cities are at the same time required to assume responsibility for maintaining these properties, including keeping the premises safe for surrounding residents (e.g., by keeping transients out, collecting trash, and mowing overgrown lots). Monitoring and maintaining vacant lots and structures is a difficult endeavor for many reasons. The city may lack a central database of city-held properties. Responsibility for particular properties may be unclear to agencies as well as citizens. A lack of proactive maintenance may lead maintenance schedules to be driven by resident complaints, and attempts to ensure property-owner responsibility for maintenance through the placement of maintenance and utility liens only contributes to the problems of abandonment and impaired redevelopment.

Cities also encounter numerous barriers to the transfer of property for public community use, including reluctance of city officials to approve lien releases or abatements, a lack of disposal programs of property for reasonable community use, including side yard acquisitions by private owners, difficulty securing liability insurance for community use of city property, and more generally, overly bureaucratic approaches to the transfer of property for community use. Cities often provide insufficient incentives for community groups to formally "adopt lots," and there is frequently a lack of coordination among city agencies and non-profit organizations to provide assistance and resources to community groups interested in caring for vacant lots.

Establishing open space for community use contributes to quality of life and provides people with a sense of control and involvement in the future of their neighborhoods. The removal of the signs of neglect represented by vacant buildings creates a sense of hope for those people living in neighborhoods experiencing decline. Once land security is established, funds become more

---

[69] *See generally* MANAGING URBAN AND HIGH-RISE RECREATION SETTINGS (Paul Gobster ed., 1993).

readily available for developing other open space. Perhaps most important, a comprehensive system of open spaces, both small and large,[70] can restore ecological health to cities, thereby improving the quality of life for all residents.

A notable model of successful vacant lot management can be found in the Parks and People Foundation, a Baltimore, Maryland organization that established a Vacant Lot Restoration Program in 1998.[71] The Vacant Lot Restoration Program has provided training, technical assistance, and site improvement funding for over twenty neighborhood-managed open spaces on vacant lots (typically large, city-owned properties adopted by communities). The Parks and People Foundation assists community groups in transforming distressed urban open spaces into productive green space. The Foundation's experience offers several lessons for successful urban open space management, including identifying factors that contribute to sustainable neighborhood-managed open space projects. These factors include the adaptability of the space to the interests of users, clear delineation of and security for the space, well-organized groups with access to information and resources, local individuals who as catalysts lead stewardship efforts, and age diversity in the group using and managing the vacant lot.[72]

A. Preservation Techniques

A variety of open space preservation techniques are available for local governments, individuals, and public-private partnerships to conserve the urban landscape. One option is for a government to purchase land in fee simple – an effective method of controlling land but also an expensive one (plus, there is nothing to prevent future city officials from selling these lands to cover

---

[70] *See* Janet Talbot & Rachel Kaplan, *Judging the Sizes of Urban Open Areas: Is Bigger Always Better?*, 5 LANDSCAPE J. 83 (1986).

[71] The program was funded by the City Department of Housing and Community Development. *See* PARKS AND PEOPLE FOUNDATION, NEIGHBORHOOD OPEN SPACE MANAGEMENT: A REPORT ON GREENING STRATEGIES IN BALTIMORE AND SIX OTHER CITIES 3 (2000), *available at* http://parksandpeople.org/publications/special_reports/openspace.pdf.

[72] *Id.*

municipal budgets).[73] The city of Boulder, Colorado is a leader in
open space preservation, setting aside over 45,000 acres of land
within the past forty years.[74] Eminent domain is always an option,
where local government may condemn a parcel of property for
"public use" and provide the landowners with just compensation.
However, this method is rarely used.[75]

        Land banking is a useful mechanism for preserving open
space in urban areas. Land banking, in which an entity buys land
at a modest price and "banks" it for future use, permits a
community to control the use of purchased lands through resale or
leasing. Land banking makes good sense in seriously blighted
areas with substantial numbers of vacant and boarded-up homes.
A local government organization can buy these properties, usually
at a tax sale where tax-delinquent homes are auctioned by the city,
for very little money (often for one dollar plus back taxes). The
land can be banked (e.g., while awaiting funding for landscape
development) for the creation of parks and open space.

        Other options for open space creation and protection
include rights of first refusal, in which a municipality receives first
rights to purchase a piece of land when it becomes available. The
right of first refusal is an attractive option because it gives the city
flexibility and time to raise money for park development. Private
organizations may also take advantage of conservation easements
(i.e., development rights), legal agreements in which a property
owner restricts the type and amount of development that may take
place on a particular property. To create a conservation easement,
a landowner voluntarily enters into a contract with a conservation
group; such easements are regularly employed in preserving
historical structures, agricultural land, and scenic sites. There are
many advantages to the landowner, including retention of title and
potential property and estate tax deductions. The city receives

---

[73] Elizabeth Evensen, Note, *Open Space Preservation in Utah: Techniques, Tools and First "Quality Growth" Steps*, 19 J. LAND RESOURCES & ENVTL. L. 267, 269 (1999).

[74] City of Boulder, Boulder's Open Space & Mountain Parks: A History, http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=1167&Itemid=1082 (last visited May 31, 2009).

[75] Melissa Waller Baldwin, *Conservation Easements: A Viable Tool for Land Preservation*, 32 LAND & WATER L. REV. 89, 95 (1997).

significant benefits as well. When a city obtains a conservation easement, the city's cost is less than acquiring title to the property; because the city does not receive possession of the property, the costs of managing and maintaining the property are low. In addition, city government keeps receiving property tax revenues because the property remains on the tax rolls.[76]

Land trusts, which are private charitable organizations that acquire and hold interest in land for the purpose of conserving the land in perpetuity, offer yet another option for protecting urban open space. They are especially important for preserving urban landscape in those states that lack legislative open space preservation programs. Land trusts like the Nature Conservancy, the nation's largest private conservation organization, are funded by membership dues and donations and assist landowners in preserving their property and in receiving tax benefits for their efforts. Land trusts can generally purchase property for less than governmental entities because they can spend more time negotiating with landowners, and they guarantee that property will remain open space in perpetuity.

The Urban Growth Boundary (UGB) is the rising star among open space protection options. A UGB is "essentially a line drawn around a city, beyond which urban growth is not supposed to spread."[77] The goals of the UGB are 1) promoting compact and contiguous development patterns that can be efficiently served by public services, and 2) preserving open space, agricultural land, and environmentally sensitive areas that are not currently suitable for urban development.[78] UGBs have been developed in cities in Oregon, Washington, Tennessee, Florida, Maryland, California, Virginia, and Kentucky.[79] Oregon's UGBs, which have made the state famous for growth control and open space preservation, were legislatively designed to separate rural land from land that could be

---

[76] Itzchak E. Kornfeld, *Conserving Natural Resources and Open Spaces: A Primer on Individual Giving Options*, 23 ENVTL L. 185, 196 (1993).

[77] Douglas R. Appler, *America's Converging Open Space Protection Policies: Evidence from New Hampshire, Virginia, and Oregon*, 36 URB. LAW. 341, 348 (2004).

[78] ARTHUR C. NELSON & JAMES B. DUNCAN, GROWTH MANAGEMENT PRINCIPLES AND PRACTICES 73 (American Planning Assoc. 1995).

[79] Appler, *supra* note 77, at 348-49.

"urbanized," to estimate how much land cities need for future growth, and to plan and zone enough land to meet that need.[80] There is no doubt that the UGB has prevented the outward expansion of the city of Portland, and evidence indicates that it has done so without housing prices rising any faster in Portland than in comparable cities.[81]

B. Sustainable Development

Urban developers uniformly neglect open space consideration. The fact is that if you want your city, or housing development, to have good open space between buildings, safe walkways and pedestrian paths that promote self-sufficiency, and gathering places in which people encounter each other, then landscape plans must *precede* urban development.[82] No matter how sophisticated, well-designed, or aesthetically pleasing a structure is, if the landscape is not deliberately attended to during the initial stages of planning, the land is likely to fall into disfavor and be neglected – which in turn causes the decay that urban development efforts intend to remedy in the first place.

"Sustainability" refers to environmental endeavors that aspire to promote long-term human flourishing over short-term gain and that promote the integration of economic growth and equity, conservation of natural resources, and social development.[83] Any model of sustainable development must incorporate racial, social, and economic equity. For example, communities affected by polluting facilities and contaminated sites should be able to participate as equal stakeholders in

---

[80] OREGON DEP'T OF LAND CONSERVATION & DEV., OREGON'S STATEWIDE PLANNING GOALS AND GUIDELINES, GOAL 14: URBANIZATION 1 (2006), *available at* http://www.oregon.gov./LCD/docs/goals/goal14.pdf.
[81] Anthony Downs, *Have Housing Prices Risen Faster in Portland than Elsewhere?*, 13 HOUSING POL'Y DEBATE 7 (2002).
[82] Of course, too much planning is a bad thing. Innumerable environmental projects have been over-engineered by the Corps of Engineering, resulting in horrific landscapes and inefficient and unworkable structures.
[83] Emily Fisher, *Sustainable Development and Environmental Justice: Same Planet, Different Worlds?*, 26 ENVIRONS ENVTL L. & POL'Y J. 201, 203 (2003).

environmental regulation processes.[84] "A community locked into the belief that it cannot survive without the employment created by a new polluting facility is already a depressed community, in terms of economic, physical, and mental health."[85] The environmental effects of such depression reach far beyond the community itself. Not only do the poor suffer disproportionately from environmental damage caused by wealthy individuals,[86] they have become a major cause of ecological decline themselves, as population growth and inequitable development patterns push the poor in developing nations to ravage their environments.[87]

Sustainability objectives include accessibility (increased transportation choice, reduced space between destinations), housing choice (for different age groups, incomes, and household sizes), efficient use of public funds (better use of existing infrastructure and reduced demand for new services), protection of open space and natural areas (concentrated growth within existing urban areas that minimizes land consumption, infrastructure costs, and environmental consequences), and place-making (neighborhoods that are livable, vital, and attractive live/work/play environments). Distance from home is the single most important factor in determining whether someone will use a green space, so from a human-use perspective open spaces of various sizes must be distributed throughout a metropolitan area in order to be utilized.[88]

---

[84] *Id.* at 206, citing CLIFFORD RECHTSCHAFFEN & EILEEN GAUNA, ENVIRONMENTAL JUSTICE: LAW, POLICY & REGULATION 5 (Carolina Academic Press 2002).

[85] *Id.* at 208.

[86] *See, e.g.*, Rachel Oliver, *Rich, Poor and Climate Change*, CNN, Feb. 18, 2008, *available at* http://edition.cnn.com/2008/BUSINESS/02/17/eco.class/.

[87] *Id.* citing ALAN B. DURNING, WORLDWATCH INSTITUTE PAPER NO. 92: POVERTY AND THE ENVIRONMENT: REVERSING THE DOWNWARD SPIRAL 6 (Worldwatch Institute 1989).

[88] ANN FORSYTH, DESIGN CENTER FOR AMERICAN URBAN LANDSCAPE, PEOPLE AND URBAN GREEN AREAS: PERCEPTION AND USE, DESIGN BRIEF NUMBER 4 at 2 (2003). *See also* Billie Giles-Corti & Robert Donovan, *The Relative Influence of Individual, Social, and Physical Environment Determinants of Physical Activity*, 54 SOC. SCI. & MED. 1793 (2002); Ann Van Herzele & Torsten Wiedemann, *A Monitoring Tool for the Provision of Accessible and Attractive Urban Green Spaces*, 63 LANDSCAPE AND URB. PLAN. 109 (2003).

It is important to distinguish revitalization from sustainability. Revitalization combines four specific activities to improve downtown or neighborhood commercial districts: design and physical improvements to enhance the area's attractiveness, promotion and marketing to strengthen the area's image and attract customers, economic restructuring to identify the area's economic potential and attract new business and capital, and organizational development to engage all major concerned parties in planning and executing commercial district revitalization.[89] Revitalization is best understood as an economic endeavor.

What can an urban community do to protect its quality of life and its resources? A combination of sustainability, revitalization, and land use techniques can be implemented to meet the environmental needs of a particular area. Urban planning should minimize negative effects on the existing urban environment and maximize the benefits of the area's potential environmental infrastructure. The implementation of best management practices, such as preventive and remedial land conservation methods and comprehensive plans that provide roadmaps for growth, can protect important natural and cultural resources. Local building inspectors and code enforcement officers must be trained to understand local, state, and federal laws relating to resource protection and must be directed by local legislative boards to rigorously enforce local laws protecting important resources. The State Environmental Quality Review Act (SEQRA), which mandates environmental review of certain actions, is an important tool in resource protection because it creates a process by which decision-makers at the local level can identify, measure, interpret, and mitigate the potential impacts of an action on the environment.

One example of successful sustainable development is the Dudley Street Neighborhood Initiative (DSNI) which rebuilt an urban Boston community at the same time that it addressed the

---

[89] *See* KARL SEIDMAN & FANNIE MAE, REVITALIZING COMMERCE FOR AMERICAN CITIES: A PRACTITIONER'S GUIDE TO URBAN MAIN STREET PROGRAMS (2004); *See also* Harold Wolman et. al., *Evaluating the Success of Urban Success Stories: Is Reputation a Guide to Best Practice?*, 15 HOUSING POL'Y DEBATE 965 (2004)

city's environmental justice concerns.[90] Like so many distressed urban areas, between 1950 and 1981 this area of Boston became a wasteland through disinvestment, abandonment, and arson; by the early 1980's the area was home to 1,300 abandoned lots (most of them brownfields), 51 hazardous waste sites, and forty percent of Boston's trash business.[91] DSNI responded by petitioning for and obtaining the right of public involvement in remedying hazardous sites. Residents hired their own planning consultants and created a "bottom-up" redevelopment plan focused on genuine urban renewal rather than the usual urban "removal" and displacement of the poor.[92] DSNI became the first community-based non-profit group to be granted eminent domain authority, which it exercised over thirty acres of vacant urban land and subsequently established a community land trust to prevent further displacement.[93] DSNI's land trust has title to the land and residents have title to their homes. DSNI's development plan also included a community greenhouse on a former brownfield site, community gardens on formerly vacant lots, and urban agriculture to provide produce for local markets and restaurants.[94] DSNI celebrated the wealth of the neighborhood's diversity (approximately 40% black and 30% Latino) with multicultural festivals and job mentoring programs. DSNI even created a "Declaration of Community Rights" stating that the community has the right to shape the development of all plans, programs, and policies likely to affect the quality of their lives as neighborhood residents.[95]

V. LANDSCAPING FOR URBAN HEALTH

Low-income urban residents have the most hazardous toxic environments. The garbage industry courts low-income, rural

---

[90] Fisher, *supra* note 83, at 212, citing Greg Watson, Options for Sustainable Cities: Development Without Displacement, Address at the Bioneers Conference in San Rafael, CA (Oct. 18, 2002).
[91] *Id.*
[92] *Id.*, citing Holly Sklar, *Building an Urban Village: The Dudley Street Neighborhood Initiative*, 28 ENVTL. ACTION MAG. 33 (Mar. 22, 1996).
[93] *Id.* at 212.
[94] *Id.* at 213.
[95] *Id.*, citing Sklar, *supra* note 92.

towns for new garbage dumps; because the towns are too poor to afford lawyers, the town gets the trash while the garbage companies make big profits. Urban landscapes can and should be designed to reduce urban toxicity and promote human health.

A. Creating Healthy Environments

On warm summer days with calm winds, the air in a city can be two to ten degrees hotter than surrounding countryside. Scientists call this the "urban heat island" effect caused by lack of trees and vegetation as well as roof and paving materials that absorb (rather than reflect) the sun's rays. As temperatures rise, more cooling is required to maintain comfort in urban structures. From an environmental standpoint, reducing the air temperature would reduce harmful air emissions (like sulfur dioxide and nitrogen oxide) that are produced from burning fossil fuels to generate electricity. Lower ambient air temperatures would also reduce the amount of ground-level ozone (i.e., smog) that peaks during the warmest time of the year. From an economic standpoint, reducing the urban air temperature by a few degrees would save consumers millions of dollars on their utility bills each year. Planting shade trees reduces the amount of heat absorbed by buildings by shielding them from the sun's rays. Trees also reduce stormwater runoff, erosion, and urban noise.

Sustainable development is responsible development with an eye toward maintaining a viable environment for the future. The biosphere reserve is one concept for promoting sustainable development. Biosphere reserves were first created in 1974 as areas that conserve biodiversity, promote economic development, and maintain cultural values of the region.[96] They do this by creating zones of conservation while monitoring and researching the biodiversity within those zones and educating residents about sustainable development and conservation principles.[97] Biospheres are unlike any other sustainable development programs because

---

[96] Jennifer L. Eastman, Note, *Urban Biosphere Reserves: Integrating Conservation, Community, and Sustainability*, 27 WM. & MARY ENVT'L L. & POL'Y REV. 707, 709 (2003).
[97] *Id.* at 709.

central to their management is understanding and maintaining cultural values of the local area. Like traditional sustainability programs, biosphere programs also provide research, monitoring, education, and training opportunities regarding interactions between people and their environment. Biospheres simply develop the sustainability model, promoting conservation within a broader dimension of human activity and seeking reconciliation between conflicting uses and multiple interests in specific land utilizations.[98] The ultimate goal of the biosphere model is the maintenance of landscapes and improvement of ecosystems for future generations; they can do this in urban areas by achieving development patterns that make efficient use of land and infrastructure and reducing burdens on material and energy use.[99] Biospheres reduce heat in the city and reduce pollution; they also increase property values, recreational opportunities, and general quality of life. Biosphere implementation can take the form of natural parks and nature preserves that include "transition spaces" such as informal open space, industrial landscaping schemes, transport corridors, elements of the urban forest, and private open space.[100]

Urban ecosystem management is not an oxymoron. When buildings and other human-made structures combine with the urban forest, a complex ecosystem is created. An ecosystem is a complex structure where organisms (including humans) interrelate through a variety of processes and where a constant flow of energy, air, and water fuels these processes.[101] Cities can be understood as human-dominated ecosystems that rely on fossil fuels to produce energy for cars, machines, and industrial processes.[102] City governments are important participants in ecosystem protection because their laws allow them to change boundaries with relative ease, form regional governments, create regional special-purpose districts, and enter into inter-local agreements to better deal with the challenges posed by ecosystem

---

[98] *Id.* at 728.
[99] *Id.*
[100] *Id.* at 738.
[101] John M. Blair et al., *Ecosystems as Functional Units in Nature*, 14 NAT. RESOURCES & ENV'T 150, 152 (2000).
[102] *Id.* at 153.

boundaries.[103]   Planners can promote ecosystem protection by emphasizing the basic human desire to be happy where one lives and to be surrounded by beauty and by promoting the dual principles of celebration of place and respect for human dignity.[104] Planners need to focus on the connection between people and their natural surroundings. Ecosystem protection for the human species requires recognizing that residents, the dominant species within a city's ecosystem, are to be protected and nurtured and that such protection requires aiming beyond existing environmental regulations toward improving the city's overall quality of life.

B. Building Healthy Communities

Attention to the environment is not a luxury for our urban populations - it is an absolute necessity.[105]   If current trends in obesity, inactivity, and disease continue at present rates, today's youth will be the *first generation in this nation's history* to face a shorter life expectancy than their parents.[106]   Obesity rates have increased 75% among adults over the past decade, [107] accompanied by diseases related to inactivity: heart disease, high blood pressure, diabetes, coronary heart disease, osteoporosis, cancer, and stroke.[108]   Overweight children also face an increased risk of developing lung disease, diabetes, asthma, and cancer.[109]

---

[103] *See* Daniel Rodriguez, *The Role of Legal Innovation in Ecosystem Management: Perspectus from American Local Government Law*, 24 ECOLOGY L.Q. 745, 755-61 (1997).

[104] JAMES KUNSTLER, HOME FROM NOWHERE: REMAKING OUR EVERYDAY WORLD FOR THE 21ST CENTURY 122 (Touchstone Press 1996).

[105] *See generally* Billie Giles-Corti & Robert Donovan, *The Relative Influence of Individual, Social, and Physical Environment Determinants of Physical Activity*, 54 SOC. SCI. & MED. 1793 (2002).

[106] Jennifer Radcliffe, *Going to War against Epidemic of Childhood Obesity*, DAILY NEWS, Jan. 27, 2004, at 1.

[107] Nat'l Alliance for Nutrition and Activity, *Obesity and Other Diet- and Inactivity-Related Diseases: National Impact, Costs, and Solutions*, at 1-3 (2003), http://www.cspinet.org/nutritionpolicy/briefingbookfy04.ppt.

[108] RAND, *Obesity and Disability: The Shape of Things to Come* (2004), http://wwwcgi.rand.org/pubs/research_briefs/2007/RAND_RB9043-1.pdf.

[109] Cal. Ctr. for Public Health Advocacy, *An Epidemic: Overweight and Unfit Children in California Assembly District: Legislative District Policy Brief No. 1*, at   1,

Black and low-income communities suffer worst of all from obesity and related diseases.[110] Why? One reason is that poor inner-city communities are disproportionately denied the benefits of safe open spaces for physical activity in parks and schools.[111] Minorities and low-income persons are significantly less likely than whites and moderate-income individuals to engage in the regular physical activity that is absolutely crucial to good health.[112] Black children are significantly less likely than white children to be involved in organized activities, as are lower-income parents.[113] Adults with incomes below the poverty level are three times less likely than higher-income adults to be physically active.[114] African-American children are twice as likely as non-Hispanic white children to be overweight.[115] Women of lower socioeconomic status are 50% more likely to be obese than are those of higher socioeconomic status.[116] Obesity and inactivity are not necessarily personal choices, nor are they merely the result of poor eating or exercise habits. The physical environment plays a crucial role in shaping lifestyles and activity patterns.[117] There is

---

http://www.publichealthadvocacy.org/policy_briefs/study_documents/Policy_Br ief1.pdf.

[110] *See, e.g.*, Robert S. Levine et al., *Black-White Inequalities in Mortality and Life Expectancy, 1933-1999: Implications for Healthy People 2010*, 116 PUBLIC HEALTH REPORTS 474, 475 (2001); Timothy Waidmann & Shruti Rajan, *Race and Ethnic Disparities in Health Care Access and Utilization: An Examination of State Variation*, 57 MEDICAL CARE RES. & REV. 55 (2000).

[111] Robert Garcia et al., *Healthy Children, Healthy Communities: Schools, Parks, Recreation, and Sustainable Regional Planning*, 31 FORDHAM URB. L.J. 1267 (2004).

[112] Paul M. Sherer, *Why America Needs More City Parks and Open Space, Trust for the Public Land*, at 7 (2003), *available at* http://www.tpl.org.

[113] CDC, Physical *Activity Levels Among Children Aged 9-13 Year-United States 2002*, MORBIDITY AND MORTALITY WEEKLY REPORT (Aug. 22, 2003).

[114] Sherer, *supra* note 112, at 7.

[115] Cal. Ctr. for Public Health Advocacy, *supra* note 109, at 17-18.

[116] U.S. Dept. of Health and Human Services, *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*, http://www.surgeongeneral.gov/topics/obesity/calltoaction/CalltoAction.pdf.

[117] For a profile of case studies demonstrating how changes in physical environment yielded improved health and quality of life for predominantly low-income communities, *see* MANAL ABOELATA ET AL.,THE BUILT ENVIRONMENT AND HEALTH: 11 PROFILES OF NEIGHBORHOOD TRANSFORMATION 2 (July 2004),

simply no way that children and adults can increase their physical activity if they do not have accessible, safe, and affordable opportunities to be active in the first place.

A person's level of physical activity depends on one's neighborhood and the access, convenience, and safety of spaces available for activity.[118] Robert Garcia has considered the many environmental factors that contribute to inactivity and has found tremendous discrepancies in the allocation of municipal services and the provision of parks and open space for white versus non-white and low-income versus moderate-income communities.[119] For example, communities like Los Angeles, California, were designed around the automobile, making walking nearly impossible and preventing children from being able to play together. Low-income black communities have less access to park space than white and higher-income areas.[120] At the same time, there are significant differences in landscape use and perception among ethnic groups and between center city and suburban residents: whites are far less likely to go to parks in groups than blacks, are less likely to participate in social activities like festivals

---

available   *at*
http://www.preventioninstitute.org/pdf/BE_full_document_110304.pdf.
[118] Garcia et al., *supra* note 111, at 1279 (citation omitted).
[119] *Id. See also* Robert Garcia et al., *Dreams of Fields: Soccer, Community and Equal Justice – Report on Sports in Urban Parks to the California Department of Parks and Recreation,* THE CITY PROJECT, http://www.cityprojectca.org/pdf/dreamsoffields.pdf (last visited May 22, 2009); Robert Garcia, *Equal Access to California's Beaches, Second Nat'l People of Color Envt'l Leadership Summit, Resource Paper Series,* (Oct. 23, 2002), http://www.ejrc.cau.edu/summit2/Beach.pdf; Robert Garcia, et. al., *The Heritage Parkscape in the Heart of Los Angeles*, THE CITY PROJECT, http://www.cityprojectca.org/pdf/heritageparkway.pdf (last visited May 22, 2009); Robert Garcia, *The Rodney King Legacy and a Testament of Hope*, 8 AM. BAR ASSOC., GOAL IX (2002); Robert Garcia, *Mean Streets: Transportation Equity Improves Social Justice, Economic Vitality, and Environmental Quality,* 15 FORUM FOR APPLIED RESEARCH AND PUBLIC POLICY 75 (2000), *available at* http://forum.ra.utk.edu/Archives/PDF/Forum15-3E.pdf.
[120] Wendell Taylor et al., *Environmental Justice: A Framework for Collaboration Between the Public Health and Parks and Recreation Fields to Study Disparities in Physical Activity,* 4 J. OF PHYSICAL ACTIVITY & HEALTH S50, S55-S57 (2007), *available at* http://www.aacorn.org/uploads/files/EnvironmentalJustice.pdf.

and parties, are less likely to use urban environments for recreation – but are *more* interested in nature, the outdoors, and environmental concerns.[121]

Low-income and minority communities face objective environmental barriers to physical activity that more affluent communities do not, and these barriers arise from a lack of facilities and fears about safety.[122] Parks near inner-city public housing neighborhoods have historically been inaccessible to children due to their being controlled by local gangs and drug-dealers.[123] The lack of parks in low-income communities is exasperated by a decrease in school yards, which are disappearing with the increased scarcity and price of land.[124] Even if there are parks in urban areas, they are likely unreachable except by car or transit system, neither of which most low-income residents have access to. For example, within a five-mile radius of Baldwin Hills state park, located in the heart of African-American Los Angeles, there is one picnic table for every 10,000 people, one playground for 23,000 children, one soccer field for 30,000 people, and one basketball court for 36,000 people.[125] This does not take into consideration the "privatized public space" like backyards, swimming pools, and basketball hoops over garages that are the exclusive domain of higher-income individuals (i.e., suburban, white, middle-class families).

It is a public responsibility to provide safe, accessible spaces for both children and adults, and promoting health requires a comprehensive approach that includes systemic policy changes to

---

[121] Herbert Schroeder, *Perceptions and Preferences of Urban Forest Users*, 16 J. OF ARBORICULTURE 58, 59 (1990).

[122] Garcia et. al., *supra* note 111, at 1280.

[123] In a revealing display of voter participation, communities of color and low-income communities were the biggest supporters of California's Proposition 40, which provided $2.6 billion for parks, clean water, and clean air and was passed in March 2002 with the support of 77% of black, 74% of Latino, and 56% of white voters. *See* Garcia et al., *supra* note 111, at 1277.

[124] *Id.*

[125] Garcia et al., *supra* note 111, at 1281 (citing Press Release, California Department of Education, State Schools Chief O'Connell Announces California Kids' 2002 Physical Fitness Results (Jan. 28, 2003)).

create environments conducive to physical activity.[126]   As Garcia explains,

> Four of the central lessons of the environmental justice movement are that communities of color and low-income communities: (1)   disproportionately   suffer   from environmental degradation; (2) are denied public benefits such as parks, playgrounds, open space, and recreation; (3) lack the information necessary to understand the impact of environmental policies on all communities; (4) are denied full and fair public participation in the decision making process.[127]

Landscape is being used to create healthy low-income, minority communities. For example, Active Living by Design is a national program established to create and promote environments that make it safe and convenient for people to be more physically active. The program has created a community partnership with the Bronx, New York (a community that is 40% African-American and in which 45% of the residents live in poverty) to install parks, trails, and greenways in ways that combine environmental justice with active living strategies.[128] The central focus of the project is the South Bronx Greenway, an urban greenway planned with a four-mile waterfront esplanade, adjacent pocket parks, and street changes including traffic calming devices and green streetscaping. The project also includes educational and incentive programs for physical activity in local schools and targeted outreach to major employers promoting the physical activity benefits of the greenway.

Other Active Living by Design projects include the Fruitbelt and Allentown neighborhoods of Buffalo, New York (whose residents are 69% African-American and where 37% of the

---

[126] GRETCHEN WILLIAMS TORRES & MARY PITTMAN, ACTIVE LIVING THROUGH COMMUNITY DESIGN: A WHITE PAPER PREPARED FOR THE ROBERT WOOD JOHNSON   FOUNDATION   4   (2001),   *available   at* http://www.rwjf.org/files/publications/other/HealthyPlaces.pdf.

[127] Garcia et al., *supra* note 111, at 1290.

[128] *Active Living by Design, Community Partnership Profiles 2004* (on file with author).

population lives in poverty) where indoor activity venues encourage active living in the cold winter months. The redevelopment of Denver's former Stapleton International Airport, one of the largest urban redevelopments in the nation, includes land use and street design changes to promote safe walking and biking and a focused effort to address barriers to physical activity in and around businesses, schools, and residences. The public housing redevelopment in Louisville, Kentucky (65% African-American and 51% in poverty), a prime example of incorporating active living designs into economically-distressed neighborhoods, includes streetscape improvements that incorporate design elements that remedy urban deterrents to physical activity.

VI. IS THE PRIORITIZATION OF LANDSCAPE COST-PROHIBITIVE?

The most common objection to the argument that landscape must be prioritized as a tool for alleviating urban blight and promoting urban health is that landscape is expensive. If we only have a finite amount of money for a development project, isn't it more important to spend that money on the buildings that people live in rather than on plants around those buildings?

First, this Article does not claim that we can alleviate urban blight by planting flowers or installing a garden. Rather, the claim is that the goals of alleviating urban blight and promoting urban heath cannot be achieved without explicit attention directed toward the non-structural spaces in which urban residents live, work, and play. Landscape must be understood comprehensively, both in terms of its connection to built structures and in terms of the impressive variety of mechanisms available for transforming the natural environment. The key to understanding why urban landscape should be a funding priority rests in 1) the strong connection between cultural and environmental issues and 2) the importance of funding long-term, rather than short-term, solutions.

While emphasizing landscape in urban design may cost more in the short term, it will end up saving money in the long run. Promoting self-sufficiency through urban agriculture decreases government expenditures in housing and food subsidies. Lower urban temperatures achieved through urban forestry means decreased energy consumption and lower utility bills. More

recreation areas created through smart landscape design strategies yields more physical activity and better health, which in turn decreases insurance premiums.   Developing walkable green spaces around public transportation increases walking (better health) and usage of public transportation, thereby decreasing pollution.   Better landscaping through the use of native plant materials yields a decrease in water use. Identifying social capital assists in the economic development process and improves the productive potential of a community.   A positive environment produces healthier individuals, who in turn create a more productive citizenry and workforce.   Landscape also has instrumental value insofar as it can be an effective crime deterrent and environmental mitigation technique.   We might try to fully price the impact of urban blight by imagining what it would take to "pay" urban residents a "fair market value" for the various costs they bear living in the inner city.

        Crenshaw High School in southwest Los Angeles illustrates the long-term economic benefits of investing in landscape design.[129] Crenshaw, a predominantly African-American school, is a typical public education facility with high graywater discharge rates, large amounts of roof and impervious paved areas, large recreation areas that require irrigation, and soils with slow percolation rates.   Landscape architecture students created a site design plan aimed at managing stormwater, reducing the amount of domestic water imported to the site, and reusing water that is imported to the site. Through the use of roof cisterns and planters (designed to filter and retain water generated by storms and stored for later irrigation use), playfield cisterns (recycling graywater from gymnasium showers), porous parking (absorbing and trapping stormwater and auto-related contaminants in underground soil), shade trees (reducing ambient air temperature, absorbing significant amounts of carbon dioxide, and holding excess stormwater run-off), vegetated swales (captures and filters first-flush rains from adjacent streets), and vertical gardening (growing large numbers of plants in small or narrow areas including

---

[129] *See* Trans-Agency Resources for Environmental and Economic Sustainability, http://www.treepeople.org/trees/PBsite3.htm (last visited Jan. 10, 2009).

balconies, window sills, walkways, and on rooftops), the project demonstrated that landscape can be used to improve environmental quality at little cost. A cost-benefit analysis revealed that the landscape designs would yield dramatic annual improvements: 100% reduction in irrigation water use, 40% reduction in domestic water use, 100% reduction in flood management, 200% reduction in water pollution, and 100% reduction in green waste.[130] While the total estimated cost of the project was $1.2 million, over a thirty-year period these landscape changes will yield a nearly $17 million value.[131]

VII. CONCLUSION

The quality of public housing is just as important as the quantity of housing produced – and the latter need not be sacrificed for the former to be achieved. The flight of white America away from the urban core has yielded a fractionalization of our social fabric and provided a foundation for discrimination along racial and economic lines. Landscape can be a powerful instrument for alleviating urban blight and promoting urban health. A regional perspective on land use that 1) emphasizes city centers, districts, preserves, and corridors and 2) mixes land uses and functions can confront the socio-economic problems that accompany distressed urban centers by viewing neighborhoods and communities as parts of one whole rather than as units in competition with one another. Effective land-use strategies can yield healthy, functioning urban cores; safe, well-maintained public housing developments; and landscape environments that promote human flourishing. As such, landscape should be utilized as a primary tool for rehabilitating our nation's most distressed neighborhoods and cities.

---

[130] *Id.*
[131] *Id.*