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**Forum**

- 67 Future of Standards and Rules in Shaping Place: Beyond the Urban Genetic Code  
*Eran Ben-Joseph*

**Technical Papers**

- 75 Land Use and Growth Impacts from Highway Capacity Increases  
*Thomas W. Sanchez*
- 83 Statistical Framework Using GIS to Estimate Unpaved Road VMT for PM<sub>10</sub> Emission Inventories  
*Jennifer E. Morey, D. A. Niemeier, and Thirayoot Limanond*
- 94 Green Zones in the Future of Urban Planning  
*F. Gómez, J. Jabaloyes, and E. Vañó*
- 101 Clean It and They Will Come? Defining Successful Brownfield Development  
*Deborah Lange and Sue McNeil*
- 109 Brownfield Development: Tools for Stewardship  
*Deborah A. Lange and Sue McNeil*

# Future of Standards and Rules in Shaping Place: Beyond the Urban Genetic Code

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American communities are shaped by standards and codes that virtually dictate all aspects of urban form. Simple standards for subdividing land, grading, laying streets and utilities, and configuring rights-of-way and street widths may seem harmless, but, because, they have been copied and adopted from one place to another across the land, they have an enormous impact on the way our neighborhoods look, feel, and work. Today's regulations represent the sum of decades of rules designed to promote particular practices. Because so much has been built according to these dictates, the accumulated rules now have the force of universal acceptance. Treated as if they have some kind of biological significance, standards have become the definers and promoters of places—the genetic code of urban development.

Many institutions and practices converge to give established standards their reach and power. Methodical administration of public works, the centralized supervision over land development, and the rise of the various engineering and urban planning professions have established design standards as absolutes.

Local governments have often automatically adopted and legitimized such standards to shield themselves from lawsuits and from responsibility in decision making. Financial institutions and lenders have also been hesitant to support a development proposal outside the mainstream, particularly when it does not conform to established design practices. With the crafting of exact rules and standards, regulatory bodies can predictably shape development, even though the actual results may be less desirable than a variable approach.

Obviously, development standards can assure a level of quality in performance, as do many plans and construction standards designed to protect our health and safety. The problem arises when standards intended for health and safety overstep their bounds and lose grounding in the objective measures of their benefit or break the connection with the original rationale for their existence. This disconnect has overtaken many standards and regulations today because they have failed to be responsive to their negative impacts on the environment. The net effect is one of a dynamic planning enterprise frustrated by its inability to carry through innovation in the form of alternative development proposals that violate existing standards yet may be of great service in creating desirable communities.

## Inherent Problems

Three important trends can be seen as crucial in forming our collective understanding about the impacts of standards and codes on urban development and the need for change:

- The global dispersion of uniform formulas and standards,
- Deficient urban patterns appearing in forms of sprawl, and

- Insufficient responses by regulatory agencies despite numerous calls for reforms.

With the high rates of growth and the expansion of the metropolitan fringe, concern over the adverse impacts of development continues to mount. Debate over the nature and type of growth has taken central stage in the professional and political arenas. Whatever position the various debaters have taken, almost all agree that the current forms of land-use regulations and their related codes are archaic and inadequate. At base, the trouble lies in the poor connection between land-use regulation systems and physical design. The rationale for regulating development based on the separation of uses as devised by the standard zoning enabling act does not address physical design beyond rudimentary dimensional requirements.

The American model focuses on individual cases and parcels and neglects to address broader contextual issues. This type of model forces idiosyncratic rules, which it seeks to make uniform by the application of generic dimensional standards such as lot configurations and building setbacks. The deficiencies of this model can be seen in the constant need to amend it. Through the years, various approaches had to be overlaid on the existing system in order to fit it to the realities of physical planning. Some of these examples include the establishment of multiple overlay districts by various jurisdictions, as well as the historic preservation ordinances, planned unit development, neighborhood conservation districts, unified development ordinances, and traditional neighborhood development codes. This type of “band-aiding” has resulted not only in additional layers of regulations but also in unnecessary levels of complexity because the underlining approach remained unchanged (Baer 1997; Rouse et al. 2001).

Calls for regulatory reforms have been as numerous as the various overlay zoning layers and ordinances. The critique of standards associated with housing affordability has dominated the discussions and the calls for change. Numerous federal commissions, state committees, and private studies indicate that the typical regulatory envelope discourages efficiency, is costly, and increases housing costs. As recently as 2003 a study by the Pioneer Institute for Public Policy Research and the Rappaport Institute for Greater Boston concluded that in Massachusetts “excessive regulation by agencies and boards at both the state and local level has gotten to the point of frustrating the development of housing in Massachusetts. Both levels of government need to prune back the sprawling regulations and improve coordination among the different regulatory player” (Euchner 2003, p. 42). Another statement by the U.S. Advisory Commission on Regulatory Barriers to Affordable Housing declares that, “the cost of housing is being driven up by increasingly expensive and time-consuming permit approval process, by exclusionary zoning, and by well-intentioned laws aimed at protecting the environment and other features of modern-day life.” (Luger and Temki 2000).

Challenges to regulatory barriers of affordable housing have not escaped the international arena. Of particular interest is the attempt in reforming standards associated with international land-



**Fig. 1.** Influenced by increased integration of global economies and centralized control by financial institutions, planning models are stretching out beyond domestic and international borders, forcing specific uniform formulas and standards. Subdivisions in the Amazon, Brazil. Source: United Nations Environment Programme.

ing institutions, such as the World Bank, and creating reforms in practices such as slum upgrading. Reformers such as Gakenheimer and Brando (1987), Dowall (1992), Rivera (1996), Angel (2000), and Yahya et al. (2001) have repeatedly challenged existing practices where countries strive for standards that were a part of their colonial legacy or for standards that are imported at face value from the industrialized nations (Fig. 1). These reformers conclude that the key to solving the problem of urban shelters in developing countries lies in the relaxation of existing standards and regulations. They show that in many instances existing standards often impair livelihood by not allowing the incorporation of alternative building materials such as building with soil or not allowing for incremental construction. According to a recent study, less than half of the urban population in developing countries can afford to build according to the prevailing standards (Yahya et al. 2001, p. 1). Regardless of the numerous calls for regulatory reform, changes have been slow at best. A prime barrier to reform lies in the bureaucratic nature of regulatory systems (Euchner 2003, p. 5). Within such systems, change is unlikely to happen through traditional means but rather by outliers and renegades.

Attempts to reshape development standards are also thwarted by engineering standards and procedures. The impacts can be seen in the administration of street layouts and widths, as well as in grading and drainage practices. One of the most troublesome stages in the site development process involves the clearing of vegetative cover and mechanical grading. The use and attributes of the heavy equipment and the desire to cut costs by executing massive grading often result in complete alteration of the landscape and degraded environmental conditions. (Fig. 2) Local governments have generally recognized the consequences of such practices, and many have adopted standards of practice for this development phase. These typically include restrictions on clearing steep slopes, requirements to install sediment controls, and requirements to revegetate exposed soils or protect existing trees. Yet, as shown by Corish (1995), these regulations are not only poorly implemented and enforced they are seldom revisited, revised, or amended.

Codes and standards associated with subdivision development have also resulted in an urban form characterized by excessive impervious surfaces and piped drainage systems. A joint study by American Rivers, the Natural Resources Defense Council, and Smart Growth America shows that this type of development increases runoff while decreasing the supply of portable water.



**Fig. 2.** Attempts to reshape development are often thwarted by engineering standards and procedures. Impacts can be seen in the administration of street layouts and widths as well as grading and drainage practices. One of the most troublesome stages in the site development process involves the clearing of vegetative cover and mechanical standardize grading. Source: Courtesy of Alex MacLean, Landslides.

Wide streets, excessive parking requirements, and increased pavement around setbacks contribute to loss of potential infiltration (American Rivers 2002). Sewerage collection system standards for subdivisions are also so entrenched and widely accepted that alternative planning, sizing, and locations of the systems are seldom considered. As early as 1967, the Urban Land Institute warned that “the basic parameters for sanitary sewer design were set at the turn of the century and, for the most part, have remained unquestioned since that time. Sewerage collection systems today are designed almost by rote, picking values off charts and conforming to standards which were in existence before the present generation of engineers was born” (Newville 1967, p. 27). Tabors et al. (1976) suggest that planners in particular feel inadequate in challenging proposals put forward to them because of perceived lack of expertise and a general attitude of not being able to address engineering criteria and parameters. The lack of public interest in the manner or methods of sewerage has perpetuated old methods (International City, 1946, p. 146; U.S. General Accounting Office 1999).

The standardization of sewer infrastructure is further ingrained by its reliance on a singular mode of technology. Once the engineering community reached its 19th-century consensus to use water as a delivery system for waste disposal, it narrowed the range of alternatives and formed the sole base of current practice. Beder (1997) argued that the adherence to this particular paradigm constrains innovative research and the implementation of alternative solutions. Beder (1997) also concludes that the mechanisms for reappraisal do not exist within the engineering and planning community or within the regulatory bodies that often employ or are advised by them.

Changes to the existing infrastructure paradigm are slow. Although various alternatives, such as living machines, free water surface systems, and E/one sewer systems have been developed, they are not gaining wide acceptance. These ecologically appropriate alternatives are rarely advanced as options before decision makers. Planners and nonengineers must have the ability to consider such solutions in order to make informative choices and bring change. The desire for consistency, particularly in building construction, is understandable. As cities grew and experienced the consequences of disease, fire, and structural collapse, they responded with ever more and complex laws. Early in the twentieth-century, the insurance industry, endeavoring to reduce

their losses, developed a model code for states and local governments to enact into law. This model, known as the *National Building Code*, was promulgated by the American Insurance Association to be a foundation on which a legislative body could create its own regulations. The model code gained widespread popularity because it allowed local governments to adopt technical requirements without the difficulties and expense of research and the production of individual local codes. It also guaranteed the compliance with insurance standards and the disengagement for personal liability.

Building codes and standards, particularly those associated with fire safety, are reasonably enforced through a uniform model. However, the expansion of these organizations and their universal codes into other areas of urban development is questionable. In 1994, the International Code Council (ICC), was established as a nonprofit organization dedicated to the development of a single set of national and international model construction codes, including standardized zoning. By the year 2000, ICC published an impressive array of codes containing an International Residential Code (IRC), an International Private Sewage Disposal Code (IPSDC), an International Property Maintenance Code (IPMC) an International Zoning Code (IZC), and even an International Urban-Wildland Interface Code (IUWIC). By 2003, 33 states and more than 509 local jurisdictions have adopted one form or another of these codes. Out of these, 32 jurisdictions have embraced the International Zoning Code (ICC 2003; Ward 2001, p. 48).

Model codes may provide an attractive blueprint for communities lacking financial resources to develop their own codes and standards, but they also pose a danger of becoming ubiquitous responses that override unique situations. Professional organizations and practitioners have also adopted the modeling of such universal tools. The American Planning Association's (APA) *Growing Smart Legislative Guidebook: Model Statutes for Planning and the Management of Change* (APA 2002), is being promulgated as alternative approaches to existing planning and zoning practices. Yet, these modes of regulation do not guarantee the elimination of a "cook book" approach or the elimination of the habit of prescriptive and unaccommodating systems. APA's *Growing Smart*, continues to advocate precise and restrictive land-use controls and design codes thereby eliminating choice and innovation as thoroughly as their predecessors.

## Transformation of Intrinsic Tendencies

Although attempts to reform the regulatory envelope have been an integral part of the planning landscape for the past 30 years, the rate of change has been so slow as to reinforce the claim that current standards have attained the power of a genetic code. Yet, for all their dominance, there is now strong evidence that new modes of governance and new processes of building can allow citizens and planners to find better alternatives. The forces for change are emerging from the rise of enumerated place-based governing, the increase in private development, and the resurgence of physical planning and urban design.

### Enumerated Place-Based Governing

The recent shift in the relationship between national and state governments and state and local governments will be at the heart of future planning and decision-making processes. With "New Federalism" and devolution as the motto for enhancing the responsiveness and efficiency of the federal and state systems, we

are witnessing more and more the passing of policy responsibilities from the federal government to state and local governments. This process has included the allocation of block grants to states, reduced grants-in-aid from the federal government, increased flexibility for states in complying with federal requirements, and expanded use of referenda and local initiatives by citizens by using popular votes (Caves 1992; Staley 1999).

The devolution of state governments is also reflected in the relatively slow growth of state financial aid to local governments. With many states facing continuous budget pressures, they have assigned helping localities a low priority, leaving them to handle their own problems without state interference. Signs of increased local power include the authority to impose local sales taxes and the gradual adoption of limits on states' abilities to impose unfunded mandates on local governments (Watson and Gold 1997).

In recent years, several states have moved beyond de facto devolution and have considered legislation expressly intended to devolve responsibilities from state to local governments. Some states have considered converting certain existing state aid programs into block grants thereby transferring responsibility to localities. Others have combined funding streams for local aid programs to allow for greater local flexibility or have adopted mandate relief efforts that provide localities with greater control over their budgets, provision of services, and land-use planning decisions.

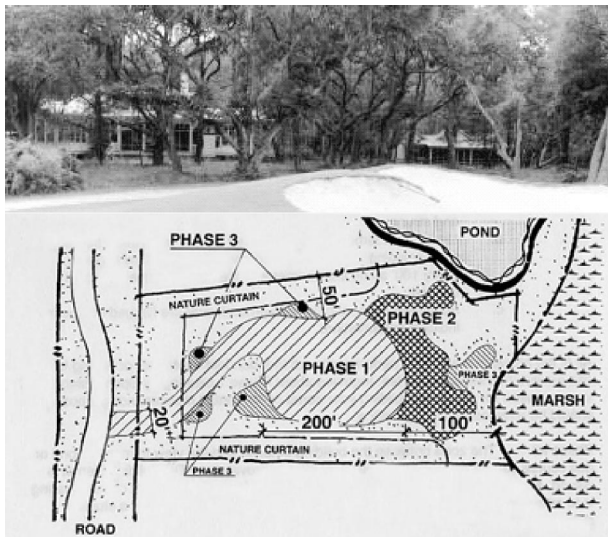
The devolution trend so far has called forth opposing tendencies. On the one hand, local barriers to affordable housing have elicited demands for standardized federal and state controls (U.S. Advisory Commission on Regulatory Barriers to Affordable Housing 1991; APA 2002, pp. 8–85). On the other hand, years of questioning standard codes and practices suggest fresh local opportunities.

As more communities are wrestling with quality-of-life problems caused by uncontrolled growth, environmental pollution, and failure of existing infrastructure, they will begin to take a stronger interest in their local power. These communities will adopt management programs and devise local threshold criteria. Under such schemes, local objectives will be translated into measurable limits for air quality, police and fire services, parks and recreation, water, drainage, and traffic. This opens the possibility for local communities to establish their own initiatives for localized place-based standards.

### Private Development and Self-Imposed Controls

The de facto legal and regulatory landscape of the United States has been radically altered by the vigor and popularity of small managed places, Common Interest Communities (CIC). At the end of the 20th century about 47 million Americans lived in condominiums or within cooperative and homeowners associations. Growing from 500 various neighborhood associations in the 1960s to an estimated 231,000 in 1999, homeowner associations compose almost 15% of the national housing stock (Community Associations Institute 1999). In the 50 largest metropolitan areas, more than half of all new housing is now built with neighborhood associations. In California, particularly in the Los Angeles and San Diego metropolitan areas, this figure exceeds 60% (Treese 1998). The estimated addition of 8,000 to 10,000 private developments each year will result in an unprecedented transition from the traditional individual ownership of property to collective governance of most property in the United States. It would be a remarkable transition from the common notion of individual ownership of property that has been for so long a part of the American





**Fig. 3.** Private developments that are pushing the sustainability envelope and protecting their environmental resources in an effort to increase marketability and financial return are growing in numbers. Their environmental requirements and guidelines for site planning, design, and construction exceed by many folds those of regular practices. Sources: Top: Jeffrey Rapson; and bottom: Spring Island Habitat Review Guidelines.

political and economic tradition. It establishes, at the very least, a new level of government at the microscale beneath our municipal structures.

The private realm versus public realm debate over relations with private (sometimes gated) communities has flourished for the past decade. (Davis 1990; Foldvary 1994; Blakely and Snyder 1997; McKenzie 2003). Whatever arguments are put forward, there is no denying that (1) more and more people are buying into these communities and are expressing a preference for contracting with a private supplier of civic goods rather than contracting with municipal government; (2) more developers are opting for this type of development because they allow for more control over neighborhood design and character; and (3) more local governments are approving and allowing such developments.

The fiscal crisis of many local governments means that these governments are unwilling to accept new responsibilities for building and maintaining streets, collecting garbage, and providing other services. In response, the establishment of a separate legal mechanism, such as a neighborhood association, within a community allows collective control over the neighborhoods' common environment and the private provision of common services. Perhaps more important, it also creates a de facto deregulation of municipal subdivision standards and zoning. Many cities and towns allow for a different, more flexible set of standards to be implemented on private or semiprivate developments. Because the local government has no legal responsibility, and thus is cleared from liability concerns, the developer can introduce different configurations and standards. The results are often innovative spatial and architectural layouts, and in some cases, unusually sensitive environmental design (Fig. 3).

The common interest community trend allows a different set of standards for private developments than publicly regulated ones. It also points to the inadequacy of the standards applied to public developments and validates the assumption that actual performance and good design should guide change.

## Renewed Interest and Concern for Design

In the past few decades, decisions regarding the built environment were often made by those far removed from understanding urban design and its impacts. The planning profession has generally been reluctant to champion physical design largely because of an ideological commitment to social science-based disciplines as the foundation for urban planning education and practice (Cuthbert 2001). This has resulted in the marginalization of urban design and physical planning to a point that it all but disappeared from urban planning curricula. Physical planning aspects have been turned over to others—and not even architects or builders, but often left up to the developers to implement—following the formulas of local codes and regulations. This has not only created a one-dimensional approach to planning, from which it is yet to fully recover, but it has also rendered planning practices inadequately prepared to deal with current environmental and development trends. In effect, the planners turned environmental concerns over to civil engineering firms.

The increasing prominence of ecology, sustainability, and living styles has brought physical planning and design to the fore. As suggested by Vale, “the main reason for a resurgence in interest in physical planning has been the ability of urban designers to link the issues of design to a variety of the most pressing issues of development and implementation” (Vale 2000, p. 220). The question of how communities should be organized and planned to minimize their ecological footprints and impact has gained a renewed importance in regional planning efforts. (Neuman 2000; Wheeler 2002) Renewed emphasis on place and ways of living has brought urban design to the forefront.

The New Urbanism movement, for example, has gained such momentum that many consider it to be a major force in urban planning practice and education (Angelides 1999; Hays 2000; Kelbaugh 2000; Zimmerman 2001; Stephenson 2002; Ellis 2002). Recently, the American Planning Association formed a division of New Urbanism. The building industry has also been quick to respond, declaring that “one of the hottest trends in real estate is the development of town centers and urban villages that include a mix of uses in a pedestrian friendly setting” (Bohl 2002, p. 1). The New Urbanism also enjoys a growing popularity among students (Catesby 2002). They are now, perhaps, a driving force behind the resurgence of the emphasis on design and physical planning in professional schools (Myers 2002; Chael 2002). Altogether, the reemphasis on physical planning has exposed the inadequacies of common regulatory mechanisms. This renewed bond between design and planning, between shaping space and its context, between the expert and the community, presents new opportunities; planners, architects and engineers can now challenge existing regulatory practices based on their poor performance, provide place-based criteria responsive to the local and not the universal, streamline an exhaustive process, and turn obscurity into a clear vision that communities can grasp.

## Altering Genetic Codes

Concerns over growth management and sprawl are prompting various organizations to take a fresh look at their current models. At the national level, several professional associations have endorsed local adjustment of fixed national standards. The Institute of Transportation Engineers (ITE), for example, has gone through a reexamination of their streets standards and recently even endorsed design practices for traditional neighborhood development that are not rooted in prescriptive numerical specifications (ITE

1999). The American Planning Association, in a major effort to provide new direction, has recently published its *Growing Smart Legislative Guidebook: Model Statutes for Planning and the Management of Change* (APA 2002). Its executive director acknowledges that “it’s time we develop new and more flexible codes that can serve all citizens far more effectively than their 20th century predecessors” (Peirce 2003). The guidebook is the latest attempt to reform planning and land-use laws by providing a variety of options for statutory reform instead of the current one-size-fits-all model. There are a number of principles and practices that promise to carry these beginnings forward. A change list is given in the following sections.

### **Standards and Codes Must be Based on Level of Physical Impact**

Local conditions and physical context must provide the threshold for the formulation of standards and codes. As seen in private development, regulations should be place-based, emphasize details, and be buttressed by common approval. Whenever a model code is considered or adopted by a higher authority, the local jurisdiction must review and amend it to its unique circumstances. There is no need for state or national regulations to be uniform and without local amendment. An example of such an approach can be seen in Oregon, where the state has authorized localities to adopt narrower street standards and allowed them to dispense with the Uniform Fire Code formally adopted by the state fire marshal. The state realized that uniform street widths could not be suitable to all environmental contexts. Accordingly, it declared that street widths established by local governments shall “supercede and prevail over any specifications and standards for roads and streets set forth in a uniform fire code” (Oregon Department of Transportation 2000, p. 5).

### **Advance the Role of the Planner and Designer—Reduce the Role of the Lawyer**

As planners defer to lawyers on the creation of regulations and codes, the results are nothing but a complex array of exceptions, qualifications, and incomprehensible language. As Garvin writes, “there is no need for any intelligent person to face zoning resolutions such as that of New York City, which is replete with language like: However, no existing use shall be deemed non-conforming, nor shall non-conforming be deemed to exist solely because of ... (c) The existence of conditions in violation of the provisions of either Sections 32–41 and 32–42, relating to Supplementary Use Regulations, or sections 32–51 and 32–52 relating to Special Provision Applying along District Boundaries, or Section 42–41, 42–42, 42–44, and 42–45 relating to Supplementary Use Regulations and Special Provision Applying along District Boundaries.” (Garvin 1996, pp. 391–392). Such language is not limited to the regulations themselves but also to codes and standards. Consider, for example, that the 756 pages of the *International Building Code* of 2000 is interpreted by a larger handbook of commentary in two volumes with over 1,000 pages in order to clarify the intent and rationale of the code provision itself.

Codes and standards must be drafted in clear and simple terms. They must be accompanied by illustrations and other visual aids, particularly photographs and other three dimensional illustrations. As such, they must be placed in the domain of professionals who understand and comprehend their spatial consequences. Lawyers are essential to the process, but their actions must follow upon, not precede, the three-dimensional statements and examples. Code formulation must directly engage those who can understand three-dimensional design, namely architects, landscape architects, and urban designers.

### **Consult with Those Outside the Paradigm to Allow Norms to Evolve**

The premise of obtaining a second opinion with regard to illness is based on the fact that the practice of medicine is not a perfect science. In medicine, it is widely accepted that a second opinion does not vilify the first doctor—it merely allows the patient to get a different viewpoint and opinion.

Like medicine, planning and engineering are not exact sciences. A second opinion, particularly about standards and practices should be part of the planning routine. However, for this process to succeed, opinions should be gathered from other professions who operate outside the specific paradigm in question.

An interesting example of willingness to consult and shift focus to practices outside an establish model, can be seen in the U.S. Department of Transportation (DOT) program of Flexibility in Design—Thinking Beyond the Pavement that evolved into the initiative of Context Sensitive Design (CSD). Aware of the many devastating consequence of past actions in the design of roads and highways, DOT decided to create a new approach that places preservation of historic, scenic, the natural environment, and other community values on an equal basis with mobility, safety, and economics. Most importantly, to achieve better results, DOT required road and transportation engineers to work in multidisciplinary teams and with the inclusion of the public. In many cases, these teams have been led by other professionals, particularly landscape architects, rather than engineers. In doing so, the landscape, the community, and other resources are understood and incorporated to transform any engineering design before it takes place.

### **Adopt a Ranking System Instead of Rigid Standards**

Emerging attitudes and technologies geared toward sensitive environmental design must inform the coding process. A future oriented checklist, one that can provide benchmarks for project evaluation, can be utilized to rank proposed projects according to their suitability in accordance with a set of locally derived criteria.

An interesting example of such a system is the recently developed Leadership in Energy and Environmental Design (LEED) Green Building Rating System (U.S. Green Building Council 2002). LEED is a voluntary, consensus-based, market driven building rating system that evaluates environmental performance and provides a norm for what constitutes a “green building.” The ranking system not only accommodates existing and known energy and environmental principles but also looks at emerging concepts. This is partly due to its unique integration of all segments of the building industry and its openness to public scrutiny. Because it is a ranking system, different levels of green building certification are awarded based on the total credits earned, thus often resulting in a higher development standard through incentives rather than compliance.

### **Adopt a ‘User Affordability’ Approach in Setting Standards for Projects in Developing Countries**

In the international sphere, setting standards at levels the local population can afford is essential. One of the key problems in many of these settings follows from the habits of engineers who often pursue “modern” performance. Their strong belief in modernity and their robust design solutions (often chosen for fear of later poor maintenance) cause them to reject minimum adequacy as an objective. These professionals often resist variations in service quality by locality and foreclose designs based on greater affordability. Recognizing the varying ability of consumers to pay

for necessary goods like sewerage, water, and housing can begin a process for improvement and will result in a wider facilitation and acceptance of minimal standards.

Leading educational and lending institutions need to advocate the mixing of suitable modern technology with less expensive local materials and traditions. A move in this direction can be seen in the recent cooperation between the Cities Alliance, the World Bank, and the Massachusetts Institute of Technology to form a resource that showcases and evaluates the experiences gained from upgrading projects in poor urban communities.

### Visualize the Incomprehensible

The difficulty for the public to visualize the physical ramifications of land use and subdivision regulations is a barrier that must be overcome on the road to better design and planning. Putting into use powerful yet readily available computational tools to introduce communities to the variety of choices available will help them visualize the potential effects that these choices produce, and will ultimately diversify the spatial paradigm of development.

Although most states require that zoning be done in accordance with a master plan, the interpretation of this requirement remains confusing and poorly performed. Currently, it is very difficult for the public to clearly envision and understand possible planning scenarios. With new readily available technologies, such complex issues can easily be integrated into the process, thereby bringing the public onboard. Examples of such technologies can be seen in Community Viz programs that facilitate 3D visualization of various scenarios and their impacts from the regional to the site level and MapJunction3D, a web-based mapping system that combines historical maps, aerial photos, geographic information systems (GIS), and 3D terrain information.

Other promising new venues can be found in the application and adaptations of new technologies that are web-based and do not require high-level computing. The Visual Interactive Code (VIC), for example, is a computer-based internet system that enables local governments to convert land-use regulations and planning data into a single, visually based format using photographs, illustration, and maps. By utilizing an easy and engaging graphic interface (pictures and data that correlate to one another and are interchangeable), different effects of various regulations can be shown. With a click of a mouse, end-users can view the configurations and layouts of various developments, density measurements, street widths, and setbacks as well as other related precedents (Fig. 4).

### Consolidate Code Approval and Enforcement at the Local Level in One Agency and “Electrify” the Process

The red tape and bureaucratic procedures associated with development approval at the local level is also the result of multiple agencies and committees involved in the process. For example, Concord, Mass., a small town of about 17,000 people, has at least 12 different commissions and committees involved in the approval process. In order to eliminate delays and jurisdictional conflicts, localities should consider consolidating this process into the hands of one agency, and establishing a uniform structure for appeals to be reviewed and approved by this sole agency.

The process can also be streamlined by introducing electronic permitting systems. From automatic approval of plans to equipping inspectors with portable devices for recording and inspecting, electronic permitting systems can provide better and more timely information to decision makers, and experts alike. The possibility for electronic plan review is particularly encouraging for its potential to automatically analyze a plan and compare it



**Fig. 4.** New communication tools that integrate digital and physical forms of representations will provide a major discourse in design and planning processes. Their ability to seamlessly integrate digital and tangible data and update information in real time enhances both the design process and communication to the public. Sources: Eran Ben-Joseph.

with codes and standard requirements. Alternatively, such systems can allow the plan reviewer to enter various descriptors and benchmarks and let the software call up the applicable requirements that need to be considered. The process can ease the burden and assure a certain consistency of performance for many towns with limited or no planning staff. A recent HUD report that strongly supports such systems in the effort to reduce regulatory barriers to housing, indicates that in those jurisdictions that have implemented such systems, turnaround time was reduced by as much as 80% (U.S. HUD 2002, p. 20).

### Establish Best Practice Clearinghouses

In a climate of increased bureaucracy and complexity, decision making and legislative changes are slow to occur. However, actual examples are the best catalysts. Best practices provide an immediate way to compare experiences and to evaluate projects based on actual performance. They are often the most effective tools to persuade skeptical decision makers and the public.

Government agencies as well as international organizations are realizing the importance of such vehicles in creating change. Essential to these clearinghouses is the ability to spread and exchange information over the Internet, disregarding political, economic, and cultural boundaries. Such interactive databases allow for the exposure of current and emerging trends, promote networking, and incite policy development based on what works. The United Nations-Habitat for example, maintains a clearinghouse of best practices for human settlements. This searchable database contains over 1,600 examples from more than 140 countries that demonstrate ways to provide improved shelters and how to protect the environment while supporting economic develop-



ment. It is unfortunate that this powerful tool is currently available only to subscribers and not free for all potential users.

Unlike the subscribers-only U.N. database, the U.S. Department of Housing and Urban Development Regulatory Barriers Clearinghouse (established in December 2002) is a free forum to share ideas and solutions for overcoming state and local regulatory barriers to affordable housing. Its services include an electronic newsletter that highlights successful barrier removal strategies and policies and a searchable database that offers possible solutions based on actual experiences.

Such clearinghouses should also provide for a follow-up or postoccupancy analysis of best practices. Too often, projects that are showcased are in their initial stages and indicators of success are not measured or accounted for through time. In an era of media and marketing, the ability to showcase achievements and alternative practices may prove to be the most important tool for change. Planners, and planning organizations in particular, must devote more time in the effort to disseminate their experiences and successes and make them readily available in tangible form.

## Conclusion

*"If the only tool you have is a hammer, you tend to see every problem as a nail."*—Abraham Maslow

Entering a new century, urban planning in the United States finds itself facing many challenges, from global economic transformation to the rise of locally based social and ethnic movements. It even suffers from a sense of insecurity and self-paralyzing pessimism. To reach and address new challenges, we must allow for the fresh air of self-determination, for a clear vision of where we are heading, and a flexible path to lead us there. Local adaptation, the proliferation of common interest communities, and new planning tools are already molding our future direction. In such a future, versatility will be the key to reform the standardization paradigm.

In the last decade, we have created a genetic bank that promotes cloning rather than mutation. The process of producing multiple sets of standards, practically identical to a single ancestor, and applying them with disregard to place and locale, has created ubiquitous unresponsive environments. To evolve we must allow for experimentation and discretion. Alexis de Tocqueville observed on his 1830s tour of the U.S. that "the great privilege enjoyed by the Americans is not only to be more enlightened than other nations but also to have the chance to make mistakes that can be retrieved" (Tocqueville 1839, p. 255).

Taking chances, allowing experimentation, and letting experts and regulators use their judgment are practices that must find their way back into planning processes. The hope rests with the upcoming generation of new planners, tuned and responsive to the natural environment and competent in the intersection between socioeconomic issues and spatial design.

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