

THE SMART CODE & ENVIRONMENTAL CONSIDERATIONS: A Tool for Managing Change in the Landscape

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Change in the natural landscape can have many consequences, including change to a stream's morphology, the hydrograph, base flow conditions, canopy alteration, stream bed composition, and a modification of the food web. Much attention is given to regional environmental and hydrological aspects, and many have examined ways to integrate the findings into regional planning. Peter Calthorpe writes in the *Regional City*, that "just as business....in any given town is part of a rich and complex regional economy, so too, are individual groves, streams and meadows part of a rich and complex regional ecology." This is no understatement.

Communities are often tasked with managing landscape change for a variety of reasons (i.e. regulatory requirements, water supply maintenance, etc.). For generations, water resources were highly regarded and held in the public's trust by a government for appropriate utilization by all. Public trust lands, that territory affected by the tide and water, has a long history of importance as a civic resource. Hydrologically related (i.e. wetlands, riparian areas, etc.) territory is also identified by local, state and national agencies as being important to the collective population and as such, regulated to avoid detrimental activities.

Since the early 20th Century zoning guided the growth, development, and urbanization of communities. Zoning has traditionally steered clear of environmental rules and regulations, as these are historically matters of the state or federal governments. That said, numerous complementary, contrasting and sometimes conflicting laws have been written to influence the way "*the environment*" is affected by development. It has been said that more than 50,000 pages of environmental legislation have been printed in the last three decades. But, some challenge that the environmental laws developed to assist in regulating environmental encroachments have supported the preservation of a healthy environment. As ecology is the science of studying interconnected species and habitats, it is important to have a set of implementing codes and regulations that is based on the principles of ecology.

Transects have been used for generations to measure quantity, quality and other characteristics of the areas being studied by ecologists and environmental scientists. Transects of human environments (i.e. an urban core to a wilderness edge) provide a useful framework for integrating aspects and concerns of the environment with those of a human's endemic habitat; the settlement.



Figure 1. A riparian area transect showing the different zones that make up the coastal marsh to upland sequence common to south eastern coastal environments.

The Smart Code presents an approach to settlement planning that is compatible with managing the environmental change from development activities. More specifically, the Smart Code directly addresses conditions inevitable in planning such as proximity to waterways, wetlands, and environmentally significant areas and offers an approach that fits within the context of a regional implementation strategy.

This aspect of the Smart Code offers users an advantage for managing regional change and environmental impact. The Smart Code does this by utilizing development tiers based on appropriate scale (either sector, community or building plan) and through the context zones (rural preserve, rural reserve, suburban, general urban, urban center, and urban core).

The Smart Code provides users with a set of development standards that can address the concerns associated with secondary, cumulative and indirect impacts. More specifically, within each context zone, development standards exist and direct the use of slopes, streamside zones, wetlands, and other environmentally significant features within a region. For example, streamside zones in the rural hinterlands can be assigned different riparian buffer standards (ie. much wider and more natural in character) than a stream within the urban core. Likewise wetlands outside of the most intensely developed areas will be given more importance than those within a designated town center. This can help to develop a comprehensive mitigation strategy, streamlining development procedures and reducing uncertainty for public and private sector projects.

The Smart Code establishes a range of responses to natural and urban conditions. This range should be regionally calibrated and updated frequently. This establishes a regional development continuum, and ensures that communities establish priorities for growth unlike conventional zoning.

The Smart Code addresses change in the landscape in four distinct ways. Firstly by identifying any necessary intervention into the natural system, the smart code establishes a set of standards that set forth the modifications expected for all associated context zones. These modifications refer to relationships of density, number of dwellings, proximity and type of activity. Mitigative measures can be associated with the standards as part of a regional calibration and within the identified continuum established by the jurisdiction.

Secondly, the Smart Code presents discrete standards for the environmental elements within a context zone. These parametric standards allow for flexibility within an established framework allowing for fair implementation. Since natural systems function at scales larger than those of an individual site, lot, project or parcel, it is important to have a code that operates in a more comprehensive way than those associated with conventional land use planning.

Thirdly, the Smart Code makes room for suggestions and requirements of appropriate, proper, or required materials for interventions into each context zone. For example, in a zone that is predominantly rural, excess usage of paved surfaces would detract from the overall character of the place, rather than add to it. This is important when considering the influence that paved surfaces have on the function and form of the natural world.

Lastly, the Smart Code establishes a protocol for management of many of the elements of the urban world that affects that natural system. Unlike uniform or "one size fits all" overlays associated with conventional codes, the Smart Code provides for an assessment of an entire progression of context zones to determine the appropriate scale, intensity, and management device to be considered.

Finally, where as conventional codes are often applied out of context and without appropriate prescriptive language, use of the Smart Code ensures that decisions and standards are not applied at wrong scale, will not divide, block off, and separate communities and community resources. This will ensure that environmental resources are integrated into fabric of community, and enhance development opportunities.

The Smart Code creates context based solutions, considers the appropriate scale of an application, connects a community with natural resources, and restores the fabric of an environmental system while enhancing the community, and reduces the long term cost of development. Perhaps most importantly, the Smart Code successfully integrates development decisions revolving around economic, societal and ecological values. The Smart Code, and its implementation strategies when calibrated for a locality offers an approach for local governments to measure the amount, intensity, value, and concerns of landscape scale changes, determine a course of action that is simultaneously regional and local in scale, and ultimately trade up.