Communities By Design, a nonprofit 501c(3) training and education organization, in cooperation with the **City of Redwood City**, is pleased to present:

The Forum at Redwood City

A CONTINUING CONVERSATION ON CITY DESIGN

Secrets of Sustainability: Seven Steps for Designing and Developing Sustainable Places

2006-07 SEASON: FORUM #4
WEDNESDAY, JANUARY 3, 2007
LITTLE FOX THEATER
2209 BROADWAY
REDWOOD CITY
6:00 P.M. - 7:45 P.M.

On January 3, 2007, the City of Redwood City and the nonprofit "Communities By Design" hosted its third presentation of the 2006-2007 Forum season. The presentation was given by architect and urban planner, Steve Coyle, Principal of HDR Town Planning in San Francisco, CA. Mr. Coyle led the audience through his framework for designing and evaluating sustainable places – sustainability, as defined by the World Commission on Environment and Development, is "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Mr. Coyle's presentation addressed the difficult questions that should guide us all as we plan, design, and develop our future.

Mr. Coyle began by positing that as World inhabitants, we must consider the role of nature to be inextricable with our motivations for design. If we consider nature to be absolutely correct, balanced, and service-dependent, why do our current patterns for growth and development continually fight with nature's grand order?

The world's population has grown to 6.5 billion, with more than 4 billion in growth since 1950. Today's 3.2 billion city dwellers are likely to increase to 6 billion by 2050. Alarmingly, the World has consumed more natural resources since World War II than in all of history prior to that time. With transportation accounting for a third of US energy use, and buildings accounting for nearly 40%, it is

> "The World has consumed more natural resources since World War II than in all of history prior to that time."
> -Steve Coyle

clear that the way we design our buildings and the spaces between them will hugely affect our use of resources.

Unsustainable growth, or growth that exceeds nature's ability to meet its resource demands, may be the greatest threat to the future of humanity across the globe. We must act immediately to develop patterns that guide sustainable growth, now and into the future. How might we bring population growth and development sprawl into balance with our natural resources? What strategies, tools, and techniques must we consider before we have exhausted our resources?

The First Challenge: Determining an Approach

Mr. Coyle outlined three approaches for attaining sustainable solutions: technological strategies, which include such advanced solutions as photovoltaic panels, wind turbines, fuel cells, and countless new hi-tech building materials; non-technological strategies, which suggest our ability to achieve a sustainable future through better design and planning practices; and combination strategies, which utilize design, planning, *and* technology to attain our goals of sustainability.

To determine the most effective approaches to achieving sustainability, Mr. Coyle introduced the following four criteria:

Time-tested patterns and practices are those that have proven themselves to be effective by surviving the ages. By their ability to outlast various alternative designs and practices throughout history, they have fulfilled generations of human necessity while withstanding the demands of nature.

Vernacular is the unconscious work of craftsmen based on knowledge accumulated over generations - design features that have evolved in response to common culture and conditions. Coyle extended this definition to identify sustainable solutions as those that can be employed with "relative efficiency and simplicity by the greatest number of people."

Pervasiveness refers to those remedies that offer broad applicability for a wide range of circumstances and in a diversity of environments.

Virtuous strategies are those that limit or reduce potential negative consequences, leveraging positive impacts in the short and long term.

The Second Challenge: Applying these Measures to Growth Strategies

With the above criteria in mind, Mr. Coyle presented five essential elements for sustainable growth:

Contained Growth, also referred to as ***compact growth***, is defined by clear boundaries between built developments and natural or cultivated lands. Historically, many settlements relied on a minimal built footprint to maximize the size of their food source and other natural resources, and to protect their flanks. In addition to conserving valuable land resources and building materials, contained growth minimizes the need for automotive travel.

Connected Growth patterns result in developments with many means of circulation – "an interconnected hierarchy of thoroughfares, sidewalks, and pathways; and natural corridors

for water and wildlife." Efficient and flexible circulation systems save energy, reduce pollution, leverage transit use, and support a healthier lifestyle. *Connectivity*, combined with *compactness*, encourages walking, biking, and mass transit. Redesigning our travel patterns at a societal level will hugely reduce our negative impact on the environment.

Contextual Growth requires that we maintain deep sensitivity to the conditions surrounding development or redevelopment. This includes calibrating scale, intensity, and form to site-specific geography, geology, hydrology, climate, and culture. *Contextual growth* leverages collective community knowledge - a living record of what has worked best over time, as well as failures and hard lessons learned. As just one example, communities that maintain a sustainable relationship with their land will have designated gathering sites that are warmed by the sun and protected from wind in the winter; or shaded and breezy in the heat of the summer. The feedback loop generated from years of *contextual* planning and building provide a performance record of the most sustainable elements and processes for a given location.

Adaptable Growth yields development that is capable of maintaining stability in the face of adverse economic, social, cultural, and physical events over the long term. Mr. Coyle cited historical examples such as Indonesian post-supported homes that were built to resist flooding and tidal surges, and sometimes even designed for relocation. He also used the example of our own Little Fox Theater as a space that has proven to be versatile by its *adaptability*. Because of its design and aesthetic, the space can become "more bar, less restaurant – more theater, less bar…" in the face of changing demands. Simple, adaptable solutions, such as self-insulating building systems, mixed-use live/work/retail developments, and parking lots that double as plazas can maximize utility, which lends a sense of vibrancy and vitality by increasing opportunity for a diversity of interactions, while minimizing the consumption of land.

Conservative Growth uses minimal non-renewable energy resources such as gas, oil, coal, and electricity; and respects environmentally sensitive lands including, forests, wetlands, riparian areas, and wildlife habitats. Florida is learning the importance of restoring the Everglades as the only means to recharge its water supply and provide flood protection. As well as being a growth principle, *conservation* encompasses environmentally sensitive practices for recycling waste, food systems management, water stewardship, natural and climate responsive building, and transportation choices, to name a few. From the energy integrity of building envelopes to the recycling of wastewater for irrigation, each and every element and system should positively reinforce a sustainable relationship between the built and natural environment.

The Third Challenge: Implementing Strategies

> "In terms of the sustainable growth of human settlement, what is *just enough*?"
>
> - Steve Coyle

Is attaining sustainability a task for specialists? Coyle suggests that specialists tend to take a myopic approach to their specialties, which has led to many of the problems we see today. While specialists will develop theories and technologies that can be applied, the broader goal of creating sustainable environments requires the work of generalists: holistic thinkers who will take an integrative approach to solving problems on a universal scale. Sustainable solutions affect (and are affected by!) every area of specialty, from architecture to planning, engineering, politics, science, education, environmentalism, economics, and of course, everyday life.

Implementing strategies for sustainability requires change at the infrastructural level, in planning, coding, and process. As they follow the sustainable growth principles outlined above, planners need to adopt an emphasis on public space and transit. They must also apply 'ecological transect' models to urban planning efforts, carefully allocating uses in a way that is consistent with natural flows.

To this end, LEED is coming out with a set of standards for sustainable Neighborhood Development. LEED-ND will comprise a rating system that combines elements of smart growth, urbanism, and green building.

The blame for today's sprawl cannot be solely assigned to poor planning, as unsustainable code restrictions have played a large role as well. As traditional codes have restricted land-uses to separate zones, requiring wide streets and lots of parking, they've actually rendered much of our human landscape unwalkable! As an alternative, Mr. Coyle promoted Form-Based Coding (FBC), a method of regulating development to achieve a specific urban form, as a healthier model for code regulation. Form-Based Codes create a predictable public realm by controlling physical form and character primarily, and land uses secondarily, through city or county regulations.

Coding can also play a role by requiring higher levels of energy efficiency, water conservation, natural ventilation, daylighting, indoor air quality, and waste management.

As far as process, Coyle touted the success of the charrette, "a multi-day collaborative planning event that harnesses the talents and energies of all affected parties, to create and support a feasible plan that represents desired, transformative community change." Charrettes not only provide the opportunity to "design-test" and "performance-test" new ideas, but also result in increased community support for sustainable initiatives because of the interactive, iterative, community-based process.

Mr. Coyle closed by reminding us that the steps and principles outlined above aid us not only by ensuring that we have a future on this planet, but also by ensuring that we plan for a life that is worth sustaining.