

**CATAWBA WATERSHED SUSTAINABLE GROWTH SPEAKER SERIES
CLASS DESCRIPTIONS**

JANUARY, 2012

Session 1: Sustainable Growth and Economic Development

Date	Location
January 11th	York Technical Baxter Hood Center
January 25th	Kershaw County Government Center

Sustainable Growth: Principles and Challenges for Communities

Milt Rhodes, will present established principles and common challenges associated with sustainable growth efforts in communities and include practical examples of planning tools for implementing sustainable growth at the local level.

Milt Rhodes, New Urban Water Works

Translating Sustainability Principles into Sound Economic Development

As local governments face shrinking budgets and high competition over attracting businesses and residents, green planning and development principles present a viable strategy for long-term economic growth. While green projects have the potential to provide jobs and tax benefits for local governments all while protecting the local environment, they also require more planning and often more financial support to get off the ground than conventional planning - both challenges that can be onerous for small local governments to manage. We will look at green planning and development policies such as green building codes, healthy watershed initiatives, sustainable land use planning (Smart Growth), and eco-industrial park development to understand what may work for your community.

Dr. Christine Boyle, UNC Finance Center

Regional Growth Prediction Modeling

The predictive growth model utilizes a binomial logistic regression to predict future land use changes in Upstate South Carolina based upon a land-use change detection from 1990 to 2000. There are several advantages in the use of the binomial logistic framework as the core component of a land-use model. It is a non-linear probability model that can better reflect the nature of urban growth problems. The model uses five sets of variables to predict urban transition probability. Each set contains multiple variables as follows: physical variables, accessibility factors, market factors, initial conditions, policy restraints. The model predicts urban and non-urban land use.

Jeff Allen, Strom Thurmond Institute

Urban includes residential, commercial and services, industrial, transportation, communication, and utilities, industrial and commercial complexes, mixed urban use or built-up land. Other land uses will be grouped as non-urban. Two series of maps were generated during this process, one for simulation of urban growth over time, and the other for simulation of urban expansion under different scenarios. These maps are very useful for model evaluation and calibration, environmental impact analysis and land use planning. It is also possible to simulate the impact of proposed land development or land use plans once the model is calibrated. Change of any input variable grid will lead to change in land transition probabilities and change in urban spatial structure as well.





Date	Location
February 8th	City of Rock Hill Operations Center
February 22nd	Kershaw County Government Center

Rethinking Low-Impact Development (LID)

Tom Low, DPZ

LID is currently the industry standard for stormwater management. Many municipalities across the country have already adopted or are in the process of adopting the LID approach. However, many of these communities are doing so without an understanding of the conflict between conventional stormwater management tools and sustainable community design. The primary concern with LID is its origin in auto-centric development - more accurately known as sprawl, and occurring across a variety of development types, but most frequently in conventional suburban development. Its techniques attempt to manage stormwater quality by using onsite design techniques and Best Management Practices (BMPs). These are applied to conventional suburban residential and commercial developments, and in some instances urban areas as well - resulting in a suburban character which does not vary from area to area, use to use or intensity to intensity; therefore failing to provide any meaningful distinction between places.

While advocating for sustainable stormwater management tools, LID ultimately offers a limited set of techniques designed specifically and in support of sprawl land uses. Residents of conventional suburban development rely heavily on their automobiles for transportation to provide daily needs and access to others uses. From a planning and sustainability perspective, clusters of single-entry housing cul-de-sacs, apartment complex pods, suburban office parks, commercial strip centers and malls, and segregated institutional uses - though they may save some residual (though non-functional and expensive to upkeep) open space and address stormwater management through LID - are not the best solution. In fact, LID may actually prevent sustainable development due the limited range of techniques specifically designed for suburban land uses that are not a good fit for compact, walkable, connected neighborhoods. Many LID practices involve lot-based, rather than block, neighborhood, or watershed-based, solutions. This increases suburban sprawl by defaulting to land use categories of large residential lots, apartment complexes, and fragmented commercial development. For instance, despite their environmental benefits of installing rain gardens in front of houses this also increases the front setback significantly. And large stormwater impoundment basins placed in-between commercial developments block access for pedestrians and discourages a "park-once" option for multiple access to daily needs.

A better strategy is to weave a smaller scale of sustainable stormwater management into compact, walkable, connected neighborhoods and communities. To foster walkable urbanism, houses need to be close to the sidewalk and commercial uses need to be better linked to a common public realm. This course explores a rethinking of LID framed within sustainable community design goals.

Light Imprint (LI)- Integrating LID and Sustainable Community Design

Tom Low, DPZ

Many water quality advocacy organizations are promoting the use of tools, techniques and frameworks which better address the larger impacts and outcomes of storm water management on the fuller picture of water quality. Once an understanding of these issues is established, the next step is to develop customized stormwater design manuals and guidelines for localized development practices and context. Advocates help municipalities work with engineers, planners and developers to calibrate these techniques to be proficient in specific site situations and applicable for different development practices. Most elect to use Low Impact Development (LID) and Best Management Practices (BMPs). However, at the same time these same organizations are also promoting sustainable community design. Thier is a growing body of evidence that unintended conflicts are resulting with these attempts at merging LID practices and sustainable community design. The Light Imprint (LI) initiative was launched to help resolve these conflicts, best integrate stormwater management and sustainable community design, and to supplement LID and BMP approaches.

LI addresses natural drainage issues through a place, use and intensity based (transect) stormwater management system that integrates community design with tools found in Low Impact Development (LID) and Best Management Practices (BMP), along with a much wider range of intrinsically sustainable solutions. LI introduces a tool set for stormwater runoff that uses natural drainage, traditional engineering infrastructure, and infiltration practices. These tools are to be used collectively at the building, lot, block, neighborhood, corridor, sector and watershed scales. LI offers context-sensitive design solutions that work together at the community level highlighting place, use and intensity based (transect) tools that are appropriate from the rural to urban condition. In the *Light Imprint Handbook* and interactive website www.lightimprint.org, a matrix organizes over sixty tools and resources in a simple, useful format. LI tools are calibrated for local conditions through this matrix considering key variables including soil hydrology, slope condition, climate, urban to rural characteristics, initial costs, and long term maintenance factors. Once variables are analyzed, a customized pallet of tools specific to the project emerges. This calibration provides economical solutions to those familiar with LID techniques, but question and then propose solutions as to where it is appropriate to use a technique and treatment train combination of tools to best support sustainable community design.

(CONTINUED)
FEBRUARY, 2012

Session 2: Low-impact Development, Light Imprint and Watershed Based Planning

Date	Location
February 8th	City of Rock Hill Operations Center
February 22nd	Kershaw County Government Center

A Case Study in Watershed-Based Plan Development and Implementation for the May River Watershed in Bluffton, SC

Kim Jones, City of Bluffton

The Town of Bluffton was one square mile for over 130 years until its first annexation in 1987. Today it has grown to approximately 54 square miles and is one of the largest municipalities in South Carolina. Until this recent growth, few sources of possible impairments to water quality were recognized within the May River Watershed, and even fewer within close proximity to the river itself. In 2007, the Town was told by SC Department of Health and Environmental Control that fecal coliform levels in the headwaters of the May River were increasing. In 2009, the river received a shellfish harvesting classification down-grade due to these increased levels. Rising fecal coliform levels are a clear indicator of deterioration of the health of a watershed. The Town of Bluffton, along with Beaufort County and local citizens, has worked to take action by developing a watershed-based plan - the May River Watershed Action Plan - to improve conditions in the May River. This session will outline the planning process and lessons learned during the development of the plan.



MARCH, 2012

Session 3: Alternate Stormwater and Site Design

Date	Location
March 14th	City of Rock Hill Operations Center
March 28th	Kershaw County Government Center

Understanding and Implementing Principals of Low Impact Development and Alternate Stormwater Techniques - Why is it important Now?

John Thomas, Sustainable Design Consultants

This session will cover the EPA's approach to requiring "Green Infrastructure" solutions to storm water design, soon to be incorporated in the upcoming 2012 regulations. The EPA has concluded that rain water is a valuable natural resource to be wisely utilized and not just a waste product needing to be diverted. This session will also touch on the demographic trends driving the development industry in the US.

Low-Impact Site Planning, Alternate Stormwater Techniques and LID Site Planning Tools

Frank Hahne, Sustainable Design Consultants

The use of alternate stormwater techniques, low-impact site planning principles and specific LID site planning tools will be show-cased. The session will also touch on LID hydrology considerations utilized in site specific designs.

City of Aiken Green Infrastructure Project (York Location)

Cal Sawyer, Clemson University

The Sand River Headwaters Green Infrastructure Project in Aiken incorporates sustainable development practices to capture and treat stormwater in downtown watersheds. Bioretention cells, bioswales, underground cisterns and pervious pavement provide smart green solutions for urban stormwater management. These Stormwater Management Practices (SMPs) enhance nature's capacity to absorb stormwater, and provide both economic and environmentally sound approaches to reduce stormwater flows that are impacting the Sand River, Hitchcock Woods and other downstream impaired waters. This project enhances the city's environmental health and demonstrates community leadership toward sustainability.

LID Approach to Stormwater Flooding Issues – Shandon Neighborhood Columbia, SC (Kershaw Location)

Betsy Kaemmerlen, Fuss and O'Neill

This session will include an overview of the recent pilot project done in the historic neighborhood of Shandon in Columbia, SC. This area was developed over many years prior to stormwater regulations being adopted. It has experienced many problems with stormwater flooding due to ever increasing impermeable coverage along with undersized piping systems. This study was undertaken to look at the viability and cost effectiveness of utilizing green infrastructure to help alleviate the problem. Rain gardens, permeable pavements and underground infiltration chambers were considered, along with other concerns such as yard waste handling.



April, 2012

Session 4: Green Building and Xeriscaping



Date	Location
April 11th	City of Rock Hill Operations Center
April 25th	Kershaw County Government Center

Green Building Practices

Coming Soon....

Keith Sanders, Keith Sanders Architecture and Consulting

The Value of Green: The Economics of Accountability

This session identifies systemic inefficiencies and introduces strategies to generate a positive economic return on addressing them. It will demonstrate the viability of increasing real income, a chief early indicator of economic growth, by introducing existing technology into mainstream society. While we often think of 'going green' as being a costly endeavor, this session will demonstrate that this is not typically the case. We'll discuss some practical business and living designs, and discuss the 'shifts' necessary in society to increase the likelihood of successful endeavors. We'll explore the idea of 'closed loop' strategies and look at examples of companies implementing these. We'll take into consideration often overlooked business variables such as risk management in considering and justifying environmentally responsible business and social strategies.

Harry Criss, Clemson Extension

Xeriscaping -Natural Landscapes for Water Conservation

The program will introduce an understanding of the landscape footprint on watersheds and potable water supplies. Learn how well designed and implemented water efficient landscapes can greatly reduce demand, aid ground water recharge, and improve over all water quality. Learn a system of design tools, strategies, and applications that value rain water as a resource. Native plants are the foundation of xeriscaping, plants adaptive to a local region are more water efficient, demand less or no chemicals, and reduce maintenance and costs. Learn how diverse native landscapes mimic the natural ecology and plant communities while meeting or exceeding aesthetic expectations.

Rick Huffman, Earth Design



May, 2012

Session 5: Sustainable Growth Policy Roundtable and Toolbox

Date	Location
May 9th	City of Rock Hill Operations Center
May 23rd	Kershaw County Government Center

Coming Soon.....Session Under Development

Thanks to the generosity of our sponsors, this Speaker Series is available at no cost to all that attend.

