



CREATING SUSTAINABLE COMMUNITIES

A GUIDE FOR DEVELOPERS AND COMMUNITIES

SUSTAINABLE LANDSCAPE

Sustainable landscaping is low impact, low maintenance, low resource use and frequently low-cost landscaping that fits each particular site and climate - virtually taking care of itself. The landscape is unique among the construction elements because it involves a living and therefore perishable finished product. A significant part of the built environment is landscape, not structures. As land itself becomes scarce and ever more precious, outdoor spaces need to be designed to deliver value in as many ways as possible, i.e., increasing land values, rewarding the senses, promoting environmental quality, and enhancing mobility. Sustainable landscapes incorporate and balance the human desire for beautiful and functional landscapes with the imperative to preserve valuable resources.

Implications of Traditional Landscaping:

- Air, noise, water pollution
- Flood damage/erosion
- Harm to biodiversity
- Consumption of natural resources, including potable water for non-potable needs
- Impacts to public health and safety
- Cost and labor Intensive
- Monotonous landscapes

Benefits of Sustainable Landscaping:

- Reduce/ prevent pollution and waste disposal; reduces environmental harm
- Requires fewer inputs (e.g., fertilizers, pesticides) and conserve natural and financial resources;
- Maximize ecological function and benefit wildlife
- Requires less maintenance
- Looks attractive and provides seasonal interest
- Safer environments for our families
- Quieter neighborhoods (from reduced use of power equipment)
- Water conservation that benefits the homeowner and community
- Reduced flooding and costs for storm water management
- Greater opportunities to enjoy nature
- Reduced landscape maintenance labor/more free time
- Reduced landscape maintenance costs
- Less strain on municipal waste collection and water treatment
- Cleaner water bodies for fishing, swimming, drinking
- Lower heating and cooling bills
 - Trees providing shade and wind breaks can reduce building energy needs (up to 30% for home heating [USDOE] and up to 50% for home cooling)
- Noise reduction (buffers)

SUGGESTED ACTIONS AND STRATEGIES

A sustainable landscape requires informed and thoughtful decision-making about every aspect of the development site: topography and layout, hardscape and lighting, vegetation and irrigation systems. Sustainable landscaping should address issues on two key areas: (a) efficiency for the private landowner, and (b) improved quality of the surrounding community and environment. For a given issue, there is a design solution that can optimize conservation potential and sustainability.



Sustainable Landscaping Principles

- Use naturalistic design
- When planning a landscape, avoid products that require frequent replacement or regular maintenance (to reduce future waste)
- Choosing indigenous plants over exotic varieties can help reduce the need for irrigation, as well as environmentally harmful pesticides and fertilizers; they also hold soil and water. Invasive non-native plants can harm the local ecology
- Use the right plant in the right place.
- Perform a soil/climate analysis to determine appropriate landscape types
- Plant for the long term by selecting healthy and long-lived plant varieties
- Strive for diversity, and biomass by establishing and protecting areas of biological richness through use of endemic species/native plants.
- Use landscaping to conserve energy and prevent air pollution
 - Use deciduous trees to provide shade in the summer and permit warming sunlight in the winter
 - Coniferous trees planted to block prevailing NW winter winds can reduce heating costs.
 - Use plants to capture airborne pollutants.
- Encourage storm water retention, design slopes and surfaces to reduce runoff, replenish groundwater, and use plants to capture water-borne pollutants.
- Design plantings and irrigation for efficient water use
- Plant low-water ground covers or drought-tolerant grass and use absorbent soil mixtures to promote storm water infiltration and reduce additional costs related to managing storm water.
- Design so that site work lessens soil compaction and precludes unnecessary soil compaction while construction is on-going.
- Reduce energy use by designing sites that do not require energy intensive maintenance to remain healthy and attractive, and by minimizing shipping distances for materials and supplies.
- Maximize ecological value by enhancing ecological functions and services.

Sustainable Landscaping Maintenance

- Integrated Pest Management
 - Monitor and assess
 - Cultural controls first
 - Least toxic chemicals
 - Follow label directions carefully
 - Spot treat rather than broadcast
- Careful Application of Nutrients
 - Test soil to determine appropriate fertilizer
 - Use organics and slow-release
 - Apply sparingly and at correct time, according to directions
 - Little to none needed for natives
- Water Conservation
 - Use mulch, native and drought-tolerant plants;
 - Water plants and grass with rainwater from an on-site cistern to limit the use of potable water; Consider using storm water, greywater, and/or condensate water for irrigation



- Choose a micro-irrigation* system, instead of traditional sprinklers, to deliver water to your grounds more efficiently. During watering, micro-irrigation delivers 85 to 90 percent of the moisture supply to plants, compared with just 40 to 50 percent delivery for typical broadcast sprinklers.
- Water early in the day
- Energy Conservation, where feasible:
 - Use hand tools rather than power tools
 - Electric tools rather than gas tools
 - 4-cycle engines rather than 2-cycle
 - Keep power tools well-tuned
 - Consider indirect impacts
- Composting / Mulching
- Focus on the “4 Rs” when acquiring materials and supplies – reduce, reuse, recycle, re-buy (i.e., re-think conventional products and look for those that are environmentally preferable).

* Micro-irrigation (also known as drip, trickle or dribble irrigation) is a method of irrigation in which water is applied directly to the rootzone of the plant in small but frequent quantities in such a way as to maintain the most active part of the soil at a quasi-optimum moisture.

Professional Advice and Guidance - Sustainable landscaping is a new and innovative area. Too often, it is assumed that because a space is green, it is also sustainable. Expert and professional services by landscape architects who specialize in sustainable landscaping may be necessary to ensure application of the foregoing principles in a cost-effective manner.

At present, no standards (comparable to the USGBC LEED green building rating system) exist for sustainable landscapes even though they are one of the largest expense items and a major consumer of scarce resources. The American Society of Landscape Architects (ASLA) is working with other concerned agencies to develop such standards.

STATE ASSISTANCE

Rutgers NJ Agricultural Experiment Station Cooperative Extension - <http://njaes.rutgers.edu/garden/>

FURTHER INFORMATION

A Sourcebook for Green and Sustainable Building - www.greenbuilder.com/sourcebook/

Beneficial Landscaping – Environmentally-friendly landscaping - www.epa.gov/greenkit/landscap.htm

H2O Water Saver Home: Northeast Waterwise Gardens - www.h2ouse.org/gardensoft/garden_list.aspx?project=920WH9DJ

NJ Stormwater Best Management Practices Manual, Chapter 7 Landscaping (February 2004)
www.nj.gov/dep/stormwater/bmp_manual2.htm

School Landscapes: Green & Cost Effective – A Sustainable Communities Initiative, NJDEP & Rutgers University – CD available from NJDEP (contact: Office of Planning and Sustainable Communities, 609-292-1997)

US Environmental Protection Agency's (EPA's) GreenScapes program provides cost-efficient and environmentally friendly solutions for large and small-scale landscaping: <http://www.epa.gov/greenscapes/>

Author: Marty Rosen
September 2007

