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## Sustainable Sites Initiative greens the landscape

- *Proposed LEED guidelines apply to the land and ecosystems that surround the building envelope.*

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With the growth of the green building movement there is a lot of interest in making buildings perform to an increasingly high standard of efficiency and sustainability. Up until now, the building envelopes and the systems within them have been the focus of the LEED Green Building Rating System.

Recently, an interdisciplinary partnership formed by the American Society of Landscape Architects, The Lady Bird Johnson Wildflower Center and the U.S. Botanical Garden proposed an addition to the Green Building Rating System that will acknowledge the land and ecosystems that surround the building envelopes of LEED projects. The group has published a report called “The Case for Sustainable Landscapes,” and proposed a set of science-based guidelines for sustainable land development practices called the “Sustainable Sites Initiative: Guidelines and Performance Benchmarks 2009.”

Following the example of the LEED Rating System, the Sustainable Sites Initiative will award credits for sustainable use of water, soil conservation, landscape plants and materials, and design for human health and well being. The U.S. Green Building Council anticipates incorporating the Sustainable Sites guidelines and benchmarks into future versions of LEED. The guidelines acknowledge the many different areas of the country, and performance levels are adjusted to be appropriate for each region.

### Sustainable benefits

Many of the benefits of sustainable land development practices that are often overlooked

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### Sustainable Sites guiding principles

#### Do no harm

Make no changes to the site that will degrade the surrounding environment. Promote projects on sites where previous disturbance or development presents an opportunity to regenerate ecosystem services through sustainable design.

#### Precautionary principle

Be cautious in making decisions that could create risk to human and environmental health. Some actions can cause irreversible damage. Examine a full range of alternatives — including no action — and be open to contributions from all affected parties.

#### Design with nature, culture

Create and implement designs that are responsive to economic, environmental and cultural conditions with respect to the local, regional and global context.

#### A decision-making hierarchy

can result in savings to a project and, over the long term, added value.

Treating water as a resource is an easy thing to understand. Irrigation that often uses potable water and is then applied to damaged or insufficient soils is wasteful and expensive. The resulting evaporation or runoff waste can be addressed by minimizing the use of potable water in landscapes along with other practices, such as preservation of soils and use of water-efficient landscapes.

Soils are valuable but are rarely treated that way. Destruction or removal of organic top soils and compaction of the remaining soils is all too common on construction sites. These construction-damaged soils, lacking organic material and heavily compacted, are often the hidden legacy of a new development.

Damaged soils result in problems with existing vegetation and difficulty in establishing new landscape elements. Compacted soils reduce infiltration, which increases runoff and reduces recharge rates of natural aquifers.

Preserving material resources and vegetative cover has many consequences, including reduced capacity for stormwater management, filtration and groundwater recharge. Removing vegetation also affects soil health because vegetation maintains soil structure, adds organic matter and reduces erosion. Existing vegetation can be of value to the finished project by reducing landscaping costs and adding to curb appeal.

Valuing the human relationship with nature is a more subtle concept but no less valuable. Many solid scientific studies have shown the benefits of a connection with the natural environment, such as increased physical activity, weight loss, improved health, better school performance and decreased crime rates.

It is possible to account for both the direct and indirect benefits of a sustainable approach, as more information is now available with so much interest and a growing perception that these benefits are desirable. Especially when a long-term view is considered, the benefits of an ecologically based sustainable approach can be shown to gain value over time.

### **Ecosystem benefits**

The goods and services that are provided by healthy ecosystems are referred to as “ecosystem services.” Examples include: pollination by bees, flood protection from wetlands, filtration of air and water by vegetation and soils, and health benefits for humans living and working within healthy ecologies.

Maximize and mimic the benefits of ecosystem services by preserving existing environmental features, conserving resources in a sustainable manner, and regenerating lost or damaged ecosystem services.

### **Provide regenerative systems**

Provide future generations with a sustainable environment supported by regenerative systems and endowed with regenerative resources.

### **Support a living process**

Continuously re-evaluate assumptions and values and adapt to demographic and environmental change.

### **Systems thinking**

Understand and value the relationships in an ecosystem and use an approach that reflects and sustains ecosystem services; re-establish the integral and essential relationship between natural processes and human activity.

### **A collaborative approach**

Encourage direct and open communication among colleagues, clients, manufacturers and users to link long-term sustainability with ethical responsibility.

### **Maintain integrity**

Implement transparent and participatory leadership, develop research with technical rigor, and communicate new findings in a clear, consistent and timely manner.

### **Environmental stewardship**

In all aspects of land development and management, foster an ethic of environmental stewardship — an understanding that responsible management of healthy ecosystems improves the quality of life for present and future generations.

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Making changes in development practices in order to build landscapes that preserve and restore healthy ecosystems is a challenging task. Persuading decision makers, who have traditionally ignored the value of ecosystem services, that they should be identified and accounted for is the goal of the initiative's authors.

Decision makers and development project teams are generally not familiar with ecosystem services, and they are not used to seeing an accounting of the benefits within their project budgets. The Sustainable Sites Initiative has developed a points system that incorporates a great deal of work by the scientific community on this subject.

Ecosystem services are goods and services of direct or indirect benefit to humans that are produced by ecosystem processes involving the interaction of living elements, such as vegetation and soil organisms, and non-living elements such as bedrock, water and air.

Researchers have come up with a number of lists of these benefits, each with slightly different wording and some slightly longer than others. The members of the Sustainable Sites Initiative's committees and staff have reviewed and consolidated the research into the list of ecosystem services that a sustainable site can strive to protect or regenerate through sustainable land development and management practices.

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