GUIDELINES AND PERFORMANCE BENCHMARKS

DRAFT 2008

American Society of Landscape Architects
Lady Bird Johnson Wildflower Center, University of Texas at Austin
United States Botanic Garden
EXECUTIVE SUMMARY

The Sustainable Sites Initiative™ is an interdisciplinary partnership, led by the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center, and the United States Botanic Garden, working to foster a transformation in land development and management practices. Through the creation and implementation of clear and rigorous design, construction, operations, and maintenance criteria, the Initiative aims to supplement existing green building and landscape guidelines as well as to become a stand-alone tool for site sustainability.

The Initiative envisions that sustainable land practices will enable natural and built systems to work together to protect and enhance the ability of landscapes to provide services such as climate regulation, clean air and water, and improved quality of life. For purposes of the Initiative, sustainability is defined as land practices “that meet the needs of the present without compromising the ability of future generations to meet their own needs.”

In November 2007, the Initiative released a Preliminary Report on its progress. During the subsequent public review period, more than 450 respondents generated over a thousand pages of comments. Since then, the Steering Committee—made up of members with expertise in multiple fields—along with 37 nationally recognized volunteer experts on the Technical Subcommittees, worked with the Initiative staff to take those comments into account as they continued to develop clear criteria for sustainable land practices.

The result of this prodigious effort is presented in Chapter 5 of this report: 59 draft prerequisites and credits and their associated benchmarks, all based on a comprehensive review of applicable science and best practices in the industries involved. The U.S. Green Building Council, a major stakeholder in the Initiative, anticipates incorporating the benchmarks into future versions of the LEED® (Leadership in Energy and Environmental Design) Green Building Rating System™.

An ecosystem services framework
The Initiative’s benchmarks are designed to preserve or restore a site’s sustainability within the context of ecosystem services—the idea that healthy ecosystems provide goods and services of benefit to humans and other organisms (see Chapter 2). So interconnected are the elements in a functioning ecosystem, that non-sustainable approaches to land development and management practices can have effects that ripple throughout the system. Yet the central message of the Sustainable Sites Initiative is that any landscape—whether the site of a large subdivision, a shopping mall, a park, an abandoned rail yard, or even one home—holds the potential both to improve and to regenerate the natural benefits and services provided by ecosystems in their undeveloped state.

The value of healthy ecosystems
To be sustainable over the long term, a site needs to address competing demands on three fronts—not only environmental but also economic and social. Establishing sustainable economic feasibility relies on placing an accurate value on a site’s natural systems (see Chapter 3). Often, however, the full direct and indirect economic value of the goods and services produced by a healthy environment—and the economic consequences of an impaired ecosystem—are not taken into account. In view of the
pressing need for an economy less reliant on fossil fuels and more attuned to critical environmental challenges such as climate change, habitat loss, and water quality and scarcity issues, the Sustainable Sites Initiative hopes to encourage the land design, development, and management industries to engage in this valuation, so that built landscapes will support natural ecological functions throughout the life cycle of each site.

Describing sustainable practices
Among the first tasks of the Technical Subcommittees during the past year (see Chapter 4) was identifying the specific and measurable criteria a site would need to meet in order to be considered “sustainable.” The subcommittees deemed it essential to acknowledge that different regions of the country will have different requirements, and to develop performance benchmarks that would shift the market toward sustainability while remaining practical and achievable. The subcommittees also took human health and well-being into account as they developed the measures of sustainability because healthy ecosystems are the source of the many less tangible benefits that humans derive from a relationship with nature. Throughout, the goal was to identify criteria based on performance outcomes rather than prescriptive measures, to encourage innovation, inspire a change in thinking, and provide flexibility.

Next steps
The intents and concepts underlying the guidelines presented in Chapter 5 can be applied right away to support new sustainable practices wherever possible—with the understanding that the benchmarks today are still a work in progress. Public comment and suggestions for improvement will be taken into account for the version to be published in 2009. By 2012, the Initiative expects to have three stand-alone documents that will also supplement existing green building standards and rating systems:

- **Sustainable Sites Initiative Guidelines and Performance Benchmarks 2009**: A compilation of current research, technology, and practices to provide technical guidance and performance benchmarks for sustainable land development and management practices
- **Sustainable Sites Initiative Rating System (target publication date 2011)**: Sustainable landscape performance benchmarks with weighted credits and a recognition system
- **Sustainable Sites Initiative Reference Guide (target publication date 2012)**: A user guide containing information from pilot projects that will explain credit requirements and provide resources to aid in creative problem solving.

Many local and regional efforts now provide guidelines for improved land development and management practices, and the Initiative is interested in information sharing and partnering on these efforts. The more site designers put sustainable land practices to work, the greater the possibility of creating a profound change in society’s approach to stewardship of the land. Market transformation accelerates as more examples of sustainable land practices occur—realizing the benefits of healthy communities, economic prosperity, and functioning ecosystems.
## Credits or prerequisites that may achieve the selected ecosystem service

- Preserve threatened or endangered species habitat
- Protect and restore floodplain functions of riparian and coastal zones
- Limit disturbance of prime farmland soils, unique soils, and soils of statewide importance
- Select brownfields or greyfields for redevelopment

## Credits or prerequisites that have little or no chance of achieving the selected ecosystem service

1. Prerequisite
2. Prerequisite
3. Prerequisite
4. Credit
5. Credit
6. Credit
7. Credit
8. Credit
9. Credit
10. Credit
11. Credit

### Site Selection
Select locations to preserve existing resources and repair damaged systems

1.1 Prerequisite
1.2 Prerequisite
1.3 Prerequisite
1.4 Credit

### Pre-Design Assessment and Planning
Plan for sustainability from the onset of the project

2.1 Prerequisite
2.2 Prerequisite
2.3 Prerequisite
2.4 Credit

### Site Design—Ecological Components
Protect and restore site processes and systems

3.1 Prerequisite
3.2 Prerequisite
3.3 Prerequisite
3.4 Prerequisite
3.5 Credit
3.6 Credit
3.7 Credit
3.8 Credit
3.9 Credit
3.10 Credit
3.11 Credit

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**ECOSYSTEM SERVICES MATRIX**

<table>
<thead>
<tr>
<th>ECOSYSTEM SERVICES</th>
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<tbody>
<tr>
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**ECOSYSTEM SERVICES MATRIX CONTINUED ON PAGE 39**
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<table>
<thead>
<tr>
<th>PREREQUISITES AND CREDITS</th>
<th>ECOSYSTEM SERVICES</th>
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<tbody>
<tr>
<td><strong>3 SITE DESIGN—ECOLOGICAL COMPONENTS</strong> (continued)</td>
<td>GLOBAL CLIMATE REGULATION</td>
</tr>
<tr>
<td>3.12 Credit</td>
<td>Repair or restore damaged or lost streams, wetlands, and coastal habitats</td>
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<tr>
<td>3.13 Credit</td>
<td>Preserve existing healthy soils</td>
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<tr>
<td>3.14 Credit</td>
<td>Preserve existing topography</td>
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<tr>
<td>3.15 Credit</td>
<td>Restore soils disturbed by previous development</td>
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<tr>
<td>3.16 Credit</td>
<td>Manage water on-site</td>
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<tr>
<td>3.17 Credit</td>
<td>Cleanse water on-site</td>
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<tr>
<td>3.18 Credit</td>
<td>Eliminate potable water use in ornamental or stormwater features</td>
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<tr>
<td>3.19 Credit</td>
<td>Minimize use of potable water in water features designed for full human contact</td>
</tr>
<tr>
<td>3.20 Credit</td>
<td>Mitigate potential wildfire risks</td>
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### 4 SITE DESIGN—HUMAN HEALTH COMPONENTS

Build strong communities and a sense of stewardship

| 4.1 Credit | Promote equitable site design, construction, and use | | | | | | | | | | | | |
| 4.2 Credit | Promote sustainability awareness and education | | | | | | | | | | | | |
| 4.3 Credit | Provide for optimum site accessibility, safety, and wayfinding | | | | | | | | | | | | |
| 4.4 Credit | Provide views of the natural environment to building occupants | | | | | | | | | | | | |
| 4.5 Credit | Provide opportunities for outdoor physical activity | | | | | | | | | | | | |
| 4.6 Credit | Connect site to surrounding resources, amenities, and services | | | | | | | | | | | | |
| 4.7 Credit | Provide outdoor spaces for mental restoration | | | | | | | | | | | | |
| 4.8 Credit | Provide outdoor spaces for social interaction | | | | | | | | | | | | |
| 4.9 Credit | Design stormwater management features to be a landscape amenity | | | | | | | | | | | | |
| 4.10 Credit | Prevent and abate sensory stress | | | | | | | | | | | | |
| 4.11 Credit | Protect and promote unique cultural and historical site attributes | | | | | | | | | | | | |
### 5 SITE DESIGN—MATERIALS SELECTION

**Reuse/recycle existing materials and support sustainable production practices**

- **5.1 Prerequisite** Eliminate use of lumber from threatened tree species
- **5.2 Credit** Support sustainable practices in plant production
- **5.3 Credit** Support sustainable practices in materials manufacturing
- **5.4 Credit** Reuse on-site structures, hardscape, and landscape amenities
- **5.5 Credit** Use salvaged and recycled content materials
- **5.6 Credit** Use certified wood
- **5.7 Credit** Use products designed for reuse and recycling
- **5.8 Credit** Use adhesives, sealants, paints, and coatings with reduced VOC emissions
- **5.9 Credit** Conduct a life cycle assessment

### 6 CONSTRUCTION

**Minimize effects of construction-related activities**

- **6.1 Prerequisite** Create a soils management plan
- **6.2 Prerequisite** Restore soils disturbed during construction
- **6.3 Credit** Achieve a carbon-neutral site
- **6.4 Credit** Divert construction and demolition materials from disposal
- **6.5 Credit** Control and retain construction pollutants
- **6.6 Credit** Use excess vegetation, rocks, and soil generated during construction

### 7 OPERATIONS AND MAINTENANCE

**Maintain the site for long-term sustainability**

- **7.1 Prerequisite** Plan for sustainable landscape maintenance
- **7.2 Credit** Minimize exposure to localized air pollutants
- **7.3 Credit** Recycle organic matter generated during site operations and maintenance
- **7.4 Credit** Provide for storage and collection of recyclables
- **7.5 Credit** Use renewable sources for site outdoor electricity