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# THE SUSTAINABLE SITES INITIATIVE"







# An Overview Fall 2011

# THE SUSTAINABLE SITES INITIATIVE<sup>™</sup>

An interdisciplinary effort to create voluntary national guidelines and a rating system for sustainable land design, construction and maintenance practices for landscapes of all types, with or without buildings



MERICAN SOCIETY OF NDSCAPE ARCHITECTS ASLA Library & Education Advocacy Fund







## **Success of Green Building**

As of 2010, green building accounted for 25% of all new construction activity.

The green building market size is expected to reach \$135 billion by 2015.

The value of green building construction starts was up 50% from 2008 to 2010— from \$42 billion to \$55 billion-\$71 billion.

Source: McGraw-Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

### **Guiding Principles**

Do no harm Use the precautionary principle Design with nature and culture Use a decision-making hierarchy of preservation, restoration and regeneration Provide regenerative systems as intergenerational equity Support a living process Use a systems thinking approach Use a collaborative and ethical approach Maintain integrity in leadership and research Instill a sense of stewardship



## **Sustainable Development**

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Brundtland Report, *Our Common Future (*1987)



### Framework: Ecosystem Services

Regulate global and local climate Detoxify and cleanse air, soil and water Regulate water supply Control erosion and retain sediment

Provide refuge and nursery habitat / pollination services

Decompose, treat, and re-use waste Provide human health and well-being benefits Provide food and non-food products Provide cultural, educational and aesthetic values Mitigate potential hazards

#### MOUNTAIN AND POLAR

- Local climate regulation
- Water supply and regulation
- Erosion and sediment control
- Human health and well-being benefits
- Food and renewable non-food products
- Cultural benefits

#### FOREST & WOODLANDS

- Global climate regulation
- Local climate regulation
- Air and water cleansing
- Erosion and
- sediment control

  Habitat functions
- Waste decomposition
- and treatment
- Human health and well-being benefits
- Food and renewable
- non-food products
- Cultural benefits

#### DRYLANDS

- Global climate regulation
- Erosion and sediment control
- Pollination
- Waste decomposition and treatment
   Food and renewable
  - ron-food products

#### CULTIVATED

 Pollination
 Food and renewable non-food products

#### URBAN

- Global climate
   regulation
- Local climate regulation
- Air and water cleansing
- Human health and well-being benefits
- Cultural benefits

#### ISLANDS

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- Air and water cleansing
- Water supply and regulation
- Hazard mitigation
- Human health and well-being benefits
- Food and renewable non-food products

### **Paradigm Change**



### **Conservation to Regeneration through High Performance Landscapes**

### **Project Applications**



parks, trails, campgrounds industrial & office parks government & medical complexes conservation easements botanical gardens university campuses residential sites streetscapes & plazas



**Open Enrollment: Target 2013** 

# **Overview of SITES™** Guidelines

#### THE SUSTAINABLE SITES INITIATIVE

#### GUIDELINES AND PERFORMANCE BENCHMARKS 2009

**American Society of Landscape Architects** 

Lady Bird Johnson Wildflower Center at The University of Texas at Austin

**United States Botanic Garden** 

Measure a site's sustainability within the context of ecosystem services

250 point scale Performance based benchmarks Multiple point levels for many credits

4 levels of Pilot certification Prerequisites plus:  $\star = 100$  points (40%)  $\star \star = 125$  points (50%)  $\star \star \star = 150$  points (60%)  $\star \star \star = 200$  points (80%)

# **Overview of SITES™** categories

#### THE SUSTAINABLE SITES INITIATIVE

#### GUIDELINES AND PERFORMANCE BENCHMARKS 2009

American Society of Landscape Architects

Lady Bird Johnson Wildflower Center at The University of Texas at Austin

**United States Botanic Garden** 

Site Selection Preserve existing resources & repair damaged systems

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

**Site Design – Water** Protect and restore site's processes and systems

Site Design – Soil and Vegetation Protect and restore site's processes and systems

**Site Design – Materials Selection** *Reuse/recycle & support sustainable production practices* 

Site Design – Human Health and Well-Being Build communities and a sense of stewardship

**Construction** *Minimize effects of construction-related activities* 

**Operations and Maintenance** *Maintain the site for long-term sustainability* 

Monitoring and Innovation Reward exceptional performance



Each Prerequisite and Credit includes:

- Credit Intent
- Requirements
- Submittal Documentation
- Potential Technologies and Strategies
- Links to Other Credits
- Resources

# **Site Selection**



#### **Site Selection**

21 possible points

Select locations to preserve existing resources and repair damaged systems

Prerequisite 1.1: Limit development of soils designated as prime farmland, unique farmland, and farmland of statewide importance

Prerequisite 1.2: Protect floodplain functions

Prerequisite 1.3: Preserve wetlands

Prerequisite 1.4: Preserve threatened or endangered species and their habitats

Credit 1.5: Select brownfields or greyfields for redevelopment (5-10 points)

Credit 1.6: Select sites within existing communities (6 points)

Credit 1.7: Select sites that encourage non-motorized transportation and use of public transit (5 points)

#### **Guidelines & Performance Benchmarks 2009: Site Selection**



Select brownfields or greyfields for redevelopment

- During the site selection process, give preference to previously developed or brownfield sites
- Coordinate site development plans with remediation activity and use of existing infrastructure and materials, as appropriate
- 5 points for selecting greyfield
- 10 points for selecting brownfield

### **Pre-Design Assessment**



Pre-Design Assessment and Planning

4 possible points

Plan for sustainability from the onset of the project

Prerequisite 2.1: Conduct a pre-design site assessment and explore opportunities for site sustainability

**Prerequisite 2.2:** Use an integrated site development process

Credit 2.3: Engage users and other stakeholders in site design (4 points)

Guidelines & Performance Benchmarks 2009: Pre-Design Assessment

### Prerequisite 2.1 [REQUIRED]

Conduct a pre-design site assessment and explore opportunities for site sustainability



• Use an integrated design team to thoroughly assess the site

- Consider sustainable design options linked to credit options
- Use SITES worksheet to ensure adequate coverage

# Site Design - Water



#### Site Design - Water

44 possible points

#### Protect and restore processes and systems associated with a site's hydrology

Prerequisite 3.1: Reduce potable water use for landscape irrigation by 50 percent from established baseline

Credit 3.2: Reduce potable water use for landscape irrigation by 75 percent or more from established baseline

(2-5 points)

Credit 3.3: Protect and restore riparian, wetland, and shoreline buffers (3-8 points)

Credit 3.4: Rehabilitate lost streams, wetlands, and shorelines (2-5 points)

Credit 3.5: Manage stormwater on site (5-10 points)

Credit 3.6: Protect and enhance on-site water resources and receiving water quality (3-9 points)

Credit 3.7: Design rainwater/stormwater features to provide a landscape amenity (1-3 points)

Credit 3.8: Maintain water features to conserve water and other resources (1-4 points)

#### **Guidelines & Performance Benchmarks 2009: Site Design-Water**

Credit 3.7 [1-3 points ]	Design rainwater/stormwater features to provide a landscape amenity
	<ul> <li>Make rainwater/stormwater management features visible, usable, and beautiful</li> </ul>
	<ul> <li>Document that rainwater falling on site is treated as an amenity through the way it is received, conveyed, and managed on site, and made accessible to site users</li> </ul>
	<ul> <li>Keep water healthy and clean with natural, chemical-free techniques</li> </ul>
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on site

### Site Design – Soils and Vegetation



#### Site Design – Soil and Vegetation

51 possible points

#### Protect and restore processes and systems associated with a site's soil and vegetation

Prerequisite 4.1: Control and manage known invasive plants found on site

Prerequisite 4.2: Use appropriate, non-invasive plants

Prerequisite 4.3: Create a soil management plan

Credit 4.4: Minimize soil disturbance in design and construction (6 points)

Credit 4.5: Preserve all vegetation designated as special status (5 points)

Credit 4.6: Preserve or restore appropriate plant biomass on site (3-8 points)

Credit 4.7: Use native plants (1-4 points)

Credit 4.8: Preserve plant communities native to the ecoregion (2-6 points)

Credit 4.9: Restore plant communities native to the ecoregion (1-5 points)

Credit 4.10: Use vegetation to minimize building heating requirements (2-4 points)

Credit 4.11: Use vegetation to minimize building cooling requirements (2-5 points)

Credit 4.12: Reduce urban heat island effects (3-5 points)

Credit 4.13 Reduce the risk of catastrophic wildfire (3 points)

#### **Guidelines & Performance Benchmarks 2009: Soils and Vegetation**



# Site Design – Materials Selection



#### Site Design – Materials Selection

36 possible points

Reuse/recycle existing materials and support sustainable production practices

Prerequisite 5.1: Eliminate the use of wood from threatened tree species

Credit 5.2: Maintain on-site structures, hardscape, and landscape amenities (1-4 points)

Credit 5.3: Design for deconstruction and disassembly (1-3 points)

Credit 5.4: Reuse salvaged materials and plants (2-4 points)

Credit 5.5: Use recycled content materials (2-4 points)

Credit 5.6: Use certified wood (1-4 points)

Credit 5.7: Use regional materials (2-6 points)

Credit 5.8: Use adhesives, sealants, paints, and coatings with reduced VOC emissions (2 points)

Credit 5.9: Support sustainable practices in plant production (3 points)

Credit 5.10: Support sustainable practices in materials manufacturing (3-6 points)

#### **Guidelines & Performance Benchmarks 2009: Materials Selection**



# Site Design – Human Health & Well Being



#### Site Design – Human Health and Well-Being

32 possible points

Build strong communities and a sense of stewardship

Credit 6.1: Promote equitable site development (1-3 points)

Credit 6.2: Promote equitable site use (1-4 points)

Credit 6.3: Promote sustainability awareness and education (2-4 points)

Credit 6.4: Protect and maintain unique cultural and historical places (2-4 points)

Credit 6.5: Provide for optimum site accessibility, safety, and wayfinding (3 points)

Credit 6.6: Provide opportunities for outdoor physical activity (4-5 points)

Credit 6.7: Provide views of vegetation and quiet outdoor spaces for mental restoration (3-4 points)

Credit 6.8: Provide outdoor spaces for social interaction (3 points)

Credit 6.9: Reduce light pollution (2 points)

Guidelines & Performance Benchmarks 2009: Human Health + Well Being

<b>Credit 6.3</b> [ 2 - 4 points ]	Promote sustainability awareness and education
	<ul> <li>Provide educational or interpretive elements that explain sustainable site features and/or</li> </ul>
	<ul> <li>Provide interactive elements or programming that expands sustainability learning and understanding and/or</li> </ul>
	<ul> <li>Create partnerships to extend sustainability education to local community</li> </ul>
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## Construction



#### Construction

21 possible points

Minimize effects of construction-related activities

Prerequisite 7.1: Control and retain construction pollutants

Prerequisite 7.2: Restore soils disturbed during construction

Credit 7.3: Restore soils disturbed by previous development (2-8 points)

Credit 7.4: Divert construction and demolition materials from disposal (3-5 points)

Credit 7.5: Reuse or recycle vegetation, rocks, and soil generated during construction (3-5 points)

Credit 7.6: Minimize generation of greenhouse gas emissions and exposure to localized air pollutants during construction (1-3 points)

#### **Guidelines & Performance Benchmarks 2009: Construction**

[ 3-5 points ]	
	• r • t

Reuse or recycle vegetation, rocks, and soil generated during construction

 Soils, mineral/rock waste, and plant material generated during land-clearing

3 points: Reuse 100% within 50 miles
5 points: Reuse 100% on site

• Soils must be reused for comparable to their original function: topsoil for topsoil, etc

# **Operations and Maintenance**



#### **Operations and Maintenance**

23 possible points

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

Prerequisite 8.1: Plan for sustainable site maintenance

- **Prerequisite 8.2**: Provide for storage and collection of recyclables
- Credit 8.3: Recycle organic matter generated during site operations and maintenance (2-6 points)
- Credit 8.4: Reduce outdoor energy consumption for all landscape and exterior operations (1-4 points)
- Credit 8.5 Use renewable sources for landscape electricity needs (2-3 points)
- Credit 8.6: Minimize exposure to environmental tobacco smoke (1-2 points)
- Credit 8.7: Minimize generation of greenhouse gases and exposure to localized air pollutants during landscape maintenance activities (1-4 points)
- Credit 8.8: Reduce emissions and promote the use of fuel-efficient vehicles (4 points)

**Guidelines & Performance Benchmarks 2009: Operations + Maintenance** 

Prerequisite 8.1 [ required ]	Plan for sustainable site maintenance
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### **SITES Pilot Program**

- Over 150 Registered Pilot Projects
- Range of project types and sizes, geographic diversity
- Feedback from Pilot Program to inform Reference Guide



### **SITES Pilot Program – Geographic Diversity**

- 34 U.S. states as well as Canada, Iceland and Spain
- Represent disparate US ecoregions







### **SITES Pilot Program – Types**



OPEN SPACE-PARK

- INSTITUTIONAL/EDUCATION
- COMMERCIAL

RESIDENTIAL

- STREETSCAPES/ TRANSPORTATION
- OPEN SPACE-GARDEN/ARBORETUM
- GOVERNMENT COMPLEX

MIXED-USE

### **SITES Pilot Program – Existing Land Use**



### **SITES Pilot Program – Size**



# **THE SUSTAINABLE SITES INITIATIVE** Project Timeline





# For more information, please visit: www.sustainablesites.org

# or email info@sustainablesites.org



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