



LANDSCAPES GIVE BACK

BENEFITS OF SUSTAINABLE SITES

THE SUSTAINABLE SITES INITIATIVE™

At High Point, a residential neighborhood in Seattle, WA, a vegetated median strip collects and absorbs rainwater from the street, keeping it out of city storm sewers.

HEALTHY LANDSCAPES

A subdivision, a shopping mall, or even one home—all have the potential to clean air and water, reduce flooding, cool urban air temperature, and combat climate change. And all can offer us respite, restoring our minds, bodies, and spirits.

Yet conventional land management practices too often damage the environment's ability to provide essential benefits that support human health and well-being.

NATIONAL GUIDELINES

That is why the Sustainable Sites Initiative has produced the first national, voluntary set of performance benchmarks to encourage the sustainable design, construction, and maintenance of landscapes.

As these guidelines become the accepted practices, they will transform the ways we design and build on the land, creating landscapes that nourish life for generations to come.

Photo by Roger Williams

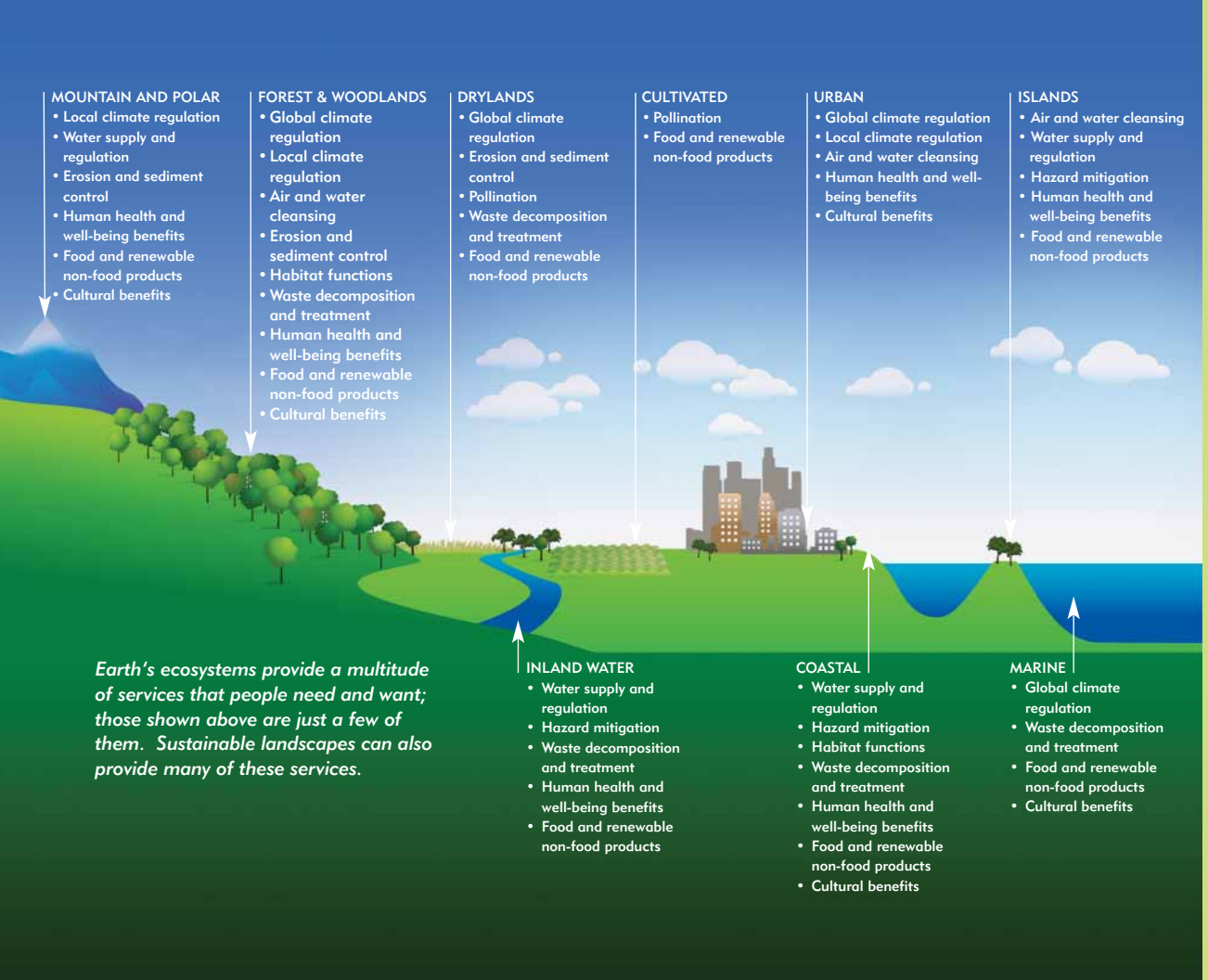
WHY SUSTAINABLE PRACTICES?

Because conventional practices are often harmful in the short term and, in the long run, damage the healthy ecosystems that support all life.

- Soils compacted during construction cause long-term costs in damaged vegetation and increased runoff, which leads to flooding problems and water pollution.
- Pesticides can contaminate ground and surface water, and yet more are currently applied to suburban lawns and gardens than to agricultural plots.
- Nationally, 13 percent of municipal waste is from yard and landscape trimmings. Such waste clogs our landfills and costs cities money.
- Landscape irrigation accounts for more than 7 billion gallons of potable water daily nationwide, at least half of which may be wasted.
- Exotic invasive species contribute to $38 billion in damage annually in the United States.

Traditional landscape practices can result in nearly 90 percent of stormwater being lost as runoff, leading to flooding. Sustainable stormwater practices—such as using rainwater in ornamental features like this one at Queens Botanical Garden in Flushing, NY (right)—can not only reduce runoff dramatically but can also reduce the use of potable water.

Photo by Jeff Goldberg/Esto



Earth's ecosystems provide a multitude of services that people need and want; those shown above are just a few of them. Sustainable landscapes can also provide many of these services.

THE VALUE OF SUSTAINABLE LANDSCAPES

The Sustainable Sites Initiative recognizes that any landscape is capable of providing the natural benefits essential to human and ecological health.

- Strategically planting vegetation outdoors reduces the energy consumption needed to cool the indoors by up to 25 percent.
- In Minneapolis, street trees resulted in savings of $6.8 million in energy costs and $9.1 million in stormwater treatment, and property values increased by $7.1 million.
- Compost and mulch can decrease soil compaction and increase soil's nutrient content and its ability to hold water.

Photo by Tom Watson, Tom Watson Photography

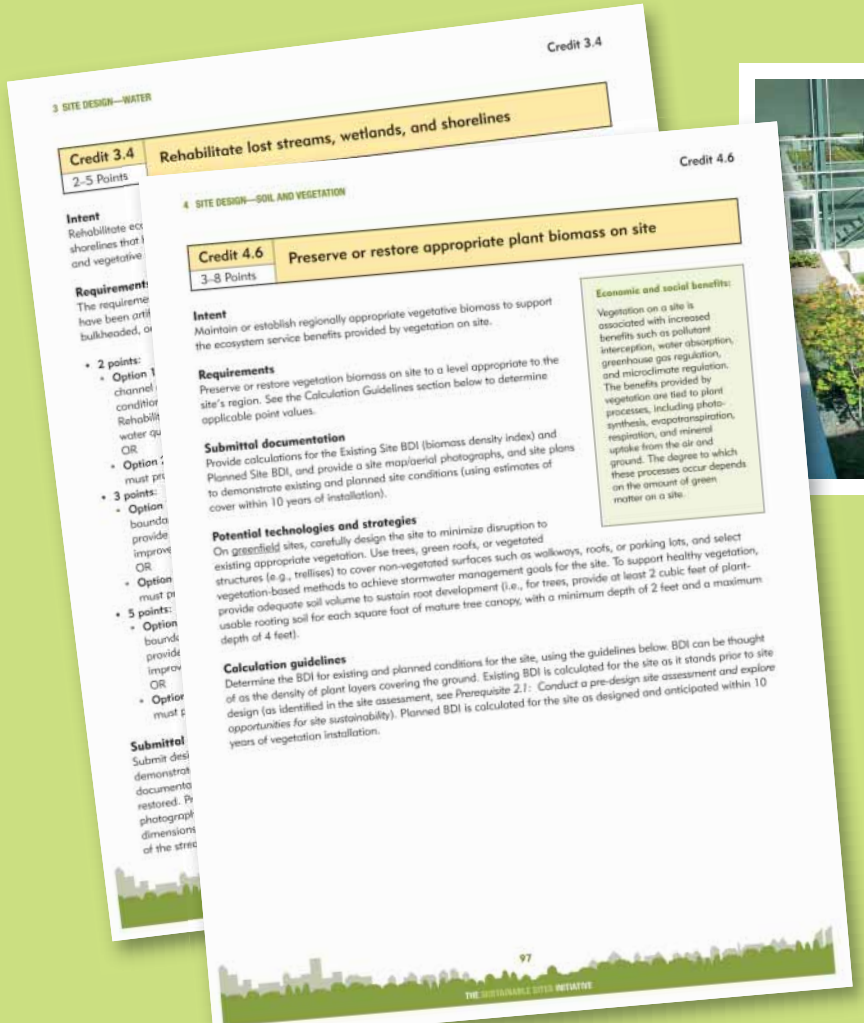
At Cayuga Medical Center in Ithaca, NY, the belief that landscape experiences benefit human health and well-being led to creation of restorative garden spaces on the hospital campus.

The green roof atop the American Society of Landscape Architects' Washington, DC, headquarters is a tranquil place for employee yoga.

Photo courtesy of ASLA

THE HUMAN FACTOR

Sustainable design provides people the many benefits of encounters with nature and outdoor exercise. Research shows that a green view from a window or a lunchtime walk through well-tended grounds can restore concentration and reduce anxiety and aggression. The benefits of exercise reduce medical costs due to heart disease, strokes, osteoarthritis, diabetes, and some types of cancer. In urban areas, plants clean the air of toxins that adversely affect those with asthma-related illnesses.



3 SITE DESIGN—WATER

Credit 3.4

Credit 3.4 Rehabilitate lost streams, wetlands, and shorelines

2–5 Points

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Credit 4.6

4 SITE DESIGN—SOIL AND VEGETATION

Credit 4.6 Preserve or restore appropriate plant biomass on site

3–8 Points

Intent

Maintain or establish regionally appropriate vegetative biomass to support the ecosystem service benefits provided by vegetation on site.

Requirements

Preserve or restore vegetation biomass on site to a level appropriate to the site's region. See the Calculation Guidelines section below to determine applicable point values.

Submittal documentation

Provide calculations for the Existing Site BDI (biomass density index) and Planned Site BDI, and provide a site map/aerial photographs, and site plans to demonstrate existing and planned site conditions (using estimates of cover within 10 years of installation).

Potential technologies and strategies

On greenfield sites, carefully design the site to minimize disruption to existing appropriate vegetation. Use trees, green roofs, or vegetated structures (e.g., trellises) to cover non-vegetated surfaces such as walkways, roofs, or parking lots, and select vegetation-based methods to achieve stormwater management goals for the site. To support healthy vegetation, provide adequate soil volume to sustain root development (i.e., for trees, provide at least 2 cubic feet of plant-usable rooting soil for each square foot of mature tree canopy, with a minimum depth of 2 feet and a maximum depth of 4 feet).

Calculation guidelines

Determine the BDI for existing and planned conditions for the site, using the guidelines below. BDI can be thought of as the density of plant layers covering the ground. Existing BDI is calculated for the site as it stands prior to site design (as identified in the site assessment, see Prerequisite 2.1: Conduct a pre-design site assessment and explore opportunities for site sustainability). Planned BDI is calculated for the site as designed and anticipated within 10 years of vegetation installation.

Economic and social benefits:

Vegetation on a site is associated with increased benefits such as pollutant interception, water absorption, greenhouse gas regulation, and microclimate regulation. The benefits provided by vegetation are tied to plant processes, including photosynthesis, evapotranspiration, respiration, and mineral uptake from the air and ground. The degree to which these processes occur depends on the amount of green matter on a site.

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THE SUSTAINABLE SITES INITIATIVE

Photo by Conservation Design Forum

The pages shown at left are from The Sustainable Sites Initiative: Guidelines and Performance Benchmarks 2009. *The full document is available free for downloading at www.sustainablesites.org. At Kresge Foundation's headquarters in Troy, MI (above), more than half the site was restored to green space planted with appropriate vegetation.*

TOOLS READY TO USE

Until now, buildings have had national standards for "green" construction, but little existed for the space beyond the building skin. The Sustainable Sites guidelines offer tools for those who design, construct, operate, and maintain landscapes of all sizes. Modeled after the LEED® (Leadership in Energy and Environmental Design) Green Building Rating System™ of the U.S. Green Building Council, the new rating system gives credits for the sustainable use of water, the conservation of soils, wise choices of vegetation and materials, and design that supports human health and well-being.

"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value."

PRESIDENT THEODORE ROOSEVELT

REWARDS
FOR STEWARDSHIP

When we create sustainable landscapes, the landscapes give back:

- Cleaner water and air
- Cooler cities
- Carbon capture that mitigates climate change
- Resource conservation and regeneration
- Greater energy efficiency
- Habitat conservation and biodiversity
- Lower costs and improved performance from stormwater management
- Better living conditions

WHO WE ARE

The Sustainable Sites Initiative is an interdisciplinary effort by

the American Society of Landscape Architects,

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

and the United States Botanic Garden

that is working to transform land development and management practices.

Photo by D. Tolman

Both the Malolepsy/ Battershell residence in Portland, OR (left), and Clinton Beach Park on Whidbey Island, WA (below), used salvaged and recycled materials to conserve resources.

Along with a diverse group of stakeholder organizations, the Initiative creates voluntary national guidelines and performance benchmarks for sustainable land design, construction, and maintenance. Of sustainability's three components, the Sustainable Sites Initiative's approach emphasizes the environment and includes aspects of economic feasibility and social equity that intersect with the environment.

Public feedback on drafts released in 2007 and 2008 informed the Initiative's guidelines, benchmarks, and rating system. Pilot projects running from 2010 to 2012 will help in evaluating and revising the benchmarks.

For more information,
see www.sustainablesites.org
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