

Sustainable Landscape Design: Connecting Wellness and Environmental Health

Presented by

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DESIGN PLANNING CONSTRUCTION MANAGEMENT MAINTENANCE GUIDANCE



Maintenance Planning: "Maintainable is Sustainable"

Planting Management

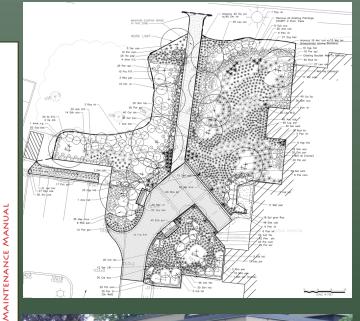
Recommendations by Month

		MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
PLANTING TYPE	FREQUENCY				MA	INTENANCE 1	ASK			
Bulbs*	Annually Annually			Weed Divide/T	Weed				Divide /T	ransplant
	2-3 Years		Compost-Mulch	Compost-Mulch						Compost-Mulc
	2-3 Years		Compost Tea	Compost Tea				compose-materi	compost-materi	compose-maic
	As Directed		composition a	composition	Water	Water	Water			
Grasses	1-7 Years	Cut	Cut							
	Annually, As Directed	Cut	Cut		Deadhead	Deadhead	Deadhead	Deadhead		
	2-3 Years, As Directed	Divide/Transplant	Divide/Transplant	Divide/Transplant			Divide/Transplant	Divide/Transplant		
	1-2 Years	Cut	Cut							
Groundcovers-	Annually, As Directed				Deadhead	Deadhead	Deadhead	Deadhead		
Ferns-	2-3 Years, As Directed	Divide/Transplant	Divide/Transplant	Divide/Transplant			Divide/Transplant	Divide/Transplant		
Ephermerals part to full Shade	2-3 Years		Compost-Mulch	Compost-Mulch				Compost-Mulch	Compost-Mulch	Compost-Mulc
	2-3 Years		Compost Tea	Compost Tea						
	Annually			Weed	Weed	Weed				
	As Directed				Water	Water	Water			
	1-2 Years	Cut	Cut							
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Perennial Beds	2-3 Years, As Directed 2-3 Years	Divide/Transplant	Divide/Transplant Compost-Mulch	Divide/Transplant Compost-Mulch			Divide/Transplant	Divide/Transplant	and the second s	Compost-Mulc
full to part sun	2-3 Years 2-3 Years		Compost-Mulch Compost Tea	Compost-Mulch Compost Tea				Compost-Mulch	Compost-Mulch	Compost-Muic
	Annually		composerea	Weed	Weed	Weed				
	As Directed				Water	Water	Water			
Shrubs	1-2 Years, As Directed	Hand Prune	Hand Prune	Hand Prune						
	3-5 Years		Compost-Mulch	Compost-Mulch				Compost-Mulch	Compost-Mulch	Compost-Mulc
Trees***	1-2 Years, As Directed	Hand Prune	Hand Prune	Hand Prune						
	3-5 Years		Compost-Mulch	Compost-Mulch				Compost-Mulch	Compost-Mulch	Compost-Mulo
		MARCH	APRIL	MAY	IUNE		AUGUST	SEPTEMBER	OCTOBER	NOVEMBER

* Bulbs will be planted primarily within beds containing other plantings. Maintenance of bulbs will occur in coordination with general bed maintenance

**Bulbs will be divided annually after fully establishing at year three

*** In event of individual to widespread tree damage, such as from fire or storms, assess affected trees immediately for hazard management such as crown cleaning, crown pruning or removal. A certified Arborist may be consulted for further direction





KENT HOSPITAL

ASTER LANDSCAPE

What are "Conventional" Landscapes?

- Emphasize high maintenance, water intensive lawn/turf Areas
- Non-native, "exotic" plant species, including some common invasive plant species
- Lack "sense of place" or reference to the natural landscape of region or locality
- Limited stormwater pre-treatment benefits



Lawns are a Public Health Issue

- There are currently over 40 million acres of turf grass in U.S., roughly the size of New York State.
- 800 million gallons of gas per year are used to power lawn mowers.
- The pesticide use per acre on home landscapes is 20 times more than used on farms
- A gas lawn mower running one hour emits the equivalent pollution of eight new cars driving 55 mph for the same amount of time.
- Approximately one-half of residential water use goes to landscaping.
- The average percentage of landfill waste that is yard waste is 20%, and can be much higher during peak seasons.
- Source: Green Irene, http://www.greenirene.com/

"Each year, forty billion dollars is spent on lawn upkeep."

From: Turf War: Americans can't live without their lawns—but how long can they live with them? by Elizabeth Kolbert, The New Yorker, July 21, 2008. Kolbert has written extensively about climate change. www.newyorker.com

This high input practice is also common in institutional Landscapes How Can We Do Better? ROI = 3-5 Years (Typ.) Benefits? Many and Large!

What is a "Low Impact" or "Sustainable" Landscape?

- Emphasizes strong connection between hydrology, soils and vegetation
- Limits use of Lawn/Turf
- Seeks to restore or enhance native ecosystem functions biodiversity
- Pre-treats storm water in decentralized systems
- Enhances "sense of place"
- Reconnects people with natural systems



Sustainable Landscapes Mimic Natural Systems and REDUCE INPUTS







Healthy Landscapes Feature Alternatives to Lawn and High Maintenance Beds!



Sustainable Landscape Design Goals:

- Compliance with Stormwater Pretreatment Standards
- Compliance with Local Zoning and Other Regulations
- Restoring Native Plant Communities & Biodiversity
- Reducing Long-term Maintenance Needs
- Re-using Local Resources
- Securing LEED Credits
- Adding Natural Amenity Value to Developed Areas
- Increasing Public Awareness/Education Opportunities

Sustainable Landscapes Can Closely Connect Buildings to their Sites

GREEN ROOFS AND GREEN WALLS

• Extend landscape from ground level up walls and to tops of buildings

BENEFITS:

- Stormwater Pre-Treatment
- Energy Conservation
- Increase Roof Membrane Longevity
- Reduce Urban Heat Island Effect
- Provide Aesthetic Benefits/Increase Real Estate Values
- Provide Accessible Public/Private Spaces
- Increase Wildlife Habitat Values



LEED Credits – LEED-NC Version 3

Total of 15+ potential LEED points related to sustainable landscapes, including green roofs and green walls:

- Stormwater Management
- Reduce Heat Island Effects; 50% Roof Area
- Daylight and Natural Views
- Water Efficiency Landscape; Reduce by 50%
- Water Efficiency Landscape; No
 Potable Water Use

- Optimize Energy Performance; Contributes to Insulation Value
- Innovation in wastewater technologies
- Innovation in design
- Reduced site disturbance, protect or restore open space
- Local/Regional materials (ie. plants, soil media)

Two U.S. federal agencies, 22 states, and 75 localities from Seattle to Boston have instituted policies to require or encourage LEED or similar programs

SUSTAINABLE SITES INITIATIVE (SITES)

American Society of Landscape Architects with others has developed guidelines and standards for landscape sustainability:

http://www.sustainablesites.org/

"Sustainable Sites[™] is a cooperative effort with the intention of supplementing existing green building and landscape guidelines as well as becoming a stand-alone tool for site sustainability."

SUSTAINABLE SITES INITIATIVE (SITES) HYDROLOGY GOALS:

- Protect and restore existing hydrologic functions
- Manage and clean water on-site
- Design stormwater features to be accessible to site users
- Design the site to minimize or eliminate use of potable water for Glashaus Dev., Emeryville, CA





New Requirements for Small, Dispersed Landscape-based Drainage Networks



VAMC Rain Garden/Training & Installation





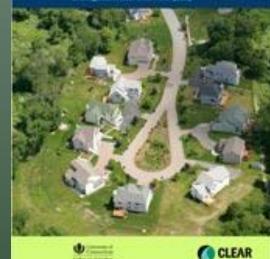


Technical Manuals Can Help



Developing A Sustainable Community

A Guide to Help Dancestikal Communities Dall Plans and Registeres that Potent Webs Scalls



Connecticut Stormmater Quality Manual

RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL

FINAL DRAFT - APRIL 2010





RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND



COASTAL RESOURCES MANAGEMENT COUNCIL





KENT HOSPITAL A CARE NEW ENGLAND HOSPITAL MAIN ENTRANCE EMERGENCY





Serenity Garden

Main Entry Drive

Rain Garden

Breast Health Ctr. Addition, 2006

Kent Hospita

Trowbridge Ctr., 2004 Infusion Ctr./added parking, 2008

Ambulatory Surgery Ctr., Under Construction



Photo Credit: Elizabeth Ferland, Kent Hospital





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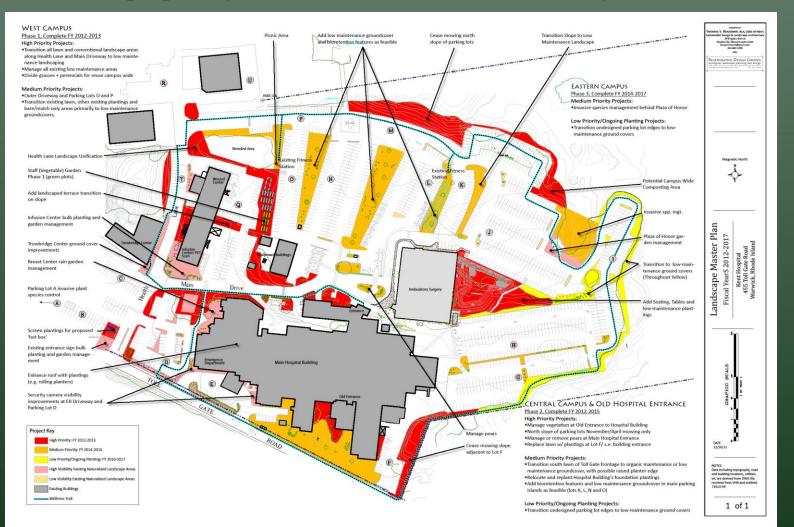






Campus Landscape Master Planning:

- Creating Unified Campus Image
- Establishing Integrated Stormwater Approach
- Reusing Materials from On Site
- Encouraging People to Interact with the Landscape



Kent Hospital, Maintenance Planning: "Maintainable is Sustainable"

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Recommendations by Month

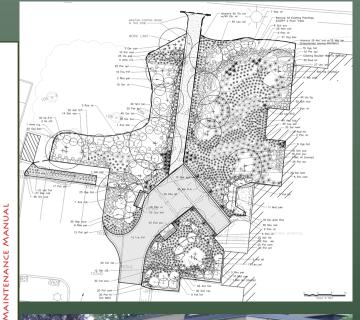
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ASTER LANDSCAPE

Kent Hospital, Rain Garden – Before

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Kent Hospital, Rain Garden – After

Kent Hospital, Rain Garden - Befc

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Kent Hospital, Rain Garden - Afte

Kent Hospital, Rain Garden – Before





Kent Hospital, Rain Garden - After



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Kent, Serenity Garden – After

Kent, Serenity Garden – Befol

Kent, Serenity Garden – After

Kent, Serenity Garden - Before

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Kent, Serenity Garden – After

Case Study: Kent Hospital, Warwick, RI Campus Image: Sense of Place, Sense of Pride

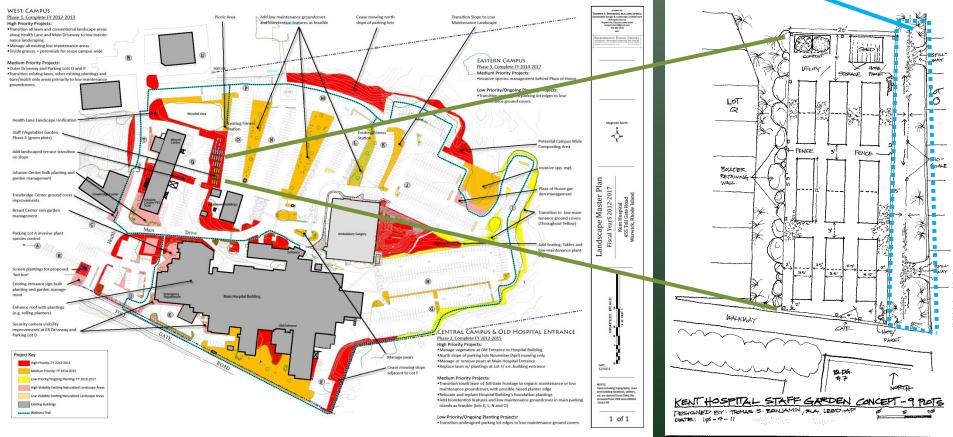




Campus Master Planning:

- Project Identification
- Project Prioritization
- Identify Synergies and Coord. Opportunities
- Budgetting and ROI/Cost Savings







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