



Facilities & Grounds Department

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## RVCC GreenScapes Policy

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In future construction and facilities projects, RVCC will follow these GreenScapes guidelines whenever feasible. Guidelines presented here were adopted from the EPA's GreenScapes Activities List, available online at <http://www.epa.gov/wastes/consERVE/rrr/greenscapes/pubs/activities.pdf>. The structure of this document mirrors the structure of the EPA document. See <http://www.epa.gov/osw/consERVE/rrr/greenscapes/pubs.htm> for additional information about BMPs and other resources.

Many of the items listed here overlap with RVCC's River Friendly certification and policies that came out of that effort, including Integrated Pest Management, water quality, water conservation, native plantings, and animal habitat.

This document is organized into four sections: **Site Planning, Planting, Materials and Energy Management, and Site Maintenance**. Within each section, the guidelines are categorized into **Waste Reduction, Soil, Water Conservation, Water and Air Quality, Energy Conservation, and Wildlife Habitat** as applicable. A few guidelines appear in multiple categories/sections, for example Site Planning and Site Maintenance.

### 1) Site Planning

#### a) Waste Reduction

- i) **Plant Debris** - Keep plant material on-site to the extent possible.
  - (1) Non-woody plant materials may be useful as compost for the organic garden. Check with the faculty sponsor of the organic garden prior to disposal.
  - (2) Trees identified for removal should remain as animal habitat in wooded areas (preferred) or chipped for use as mulch on site. Removal of wood will be at the discretion of the Executive Director of Facilities.
  - (3) Temporary storage of plant debris should be located at least 10 feet from hard surfaces and storm drains.
- ii) **Concrete** - Specify a minimum of 25% recycled aggregate (crushed concrete) for walkway, driveway, roadway base, and other uses. Specify high-performance concrete with fly ash and other recycled materials as substitutes. This is consistent with LEED specifications. If using fly ash, note that ash from coal-fired powerplants may contain mercury and other toxic heavy metals and should be tested before use.

- iii) **Asphalt** - Specify rubberized asphalt made from recycled tires for parking lots and roadways. This is consistent with LEED specifications. Note that many recycled tire products have been found to have extremely high quantities of toxic chemicals, so these materials should be tested before use.

b) **Soil**

- i) **Minimize site disturbance.** RVCC will follow the guidelines below in conjunction with LEED guidelines.
  - (1) On greenfield sites, limit site disturbance to conserve and protect topography, vegetation, and hydrology.
  - (2) On previously developed sites, restore vegetation and hydrology.
- ii) **Soil samples** - Submit soil samples to a laboratory for analysis and recommendations regarding the use of soil organic matter and natural fertilizers. Soil samples are taken and analyzed for each athletic field every spring, in accordance with River Friendly requirements.
- iii) **Amendments/fertilizers** - Specify the use of natural soil amendments and fertilizers. See the Integrated Pest Management (IPM) policy, a separate document.
- iv) **Topsoil** - Specify the removal and temporary storage of topsoil before grading and the re-spreading of topsoil after grading; include a maximum topsoil pile height of 6 feet, as well as measures to protect the stored topsoil from erosion. Topsoil may be piled higher at the discretion of the Executive Director of Facilities, who will ensure that appropriate measures (such as a second barrier) are put in place to avoid erosion.
- v) **Erosion and sediment**
  - (1) Specify compost berms, blankets, or socks for erosion and sediment (see the [GreenScapes Resources page](#) for BMPs).
  - (2) Specify the application of 2-4 inches of mulch over soil after construction for erosion and sediment control.
- vi) **Compaction** - Protect soil from compaction.
  - (1) Indirect damage to trees by compaction or cutting of root systems should be avoided.
  - (2) Specify the installation and maintenance of barriers to prohibit parking or materials staging in areas identified for protection.
  - (3) Avoid working with soil when wet.
  - (4) Specify the aeration of compacted soils to a depth of at least 6 inches (preferably 8-12 inches), before planting, for all landscaped areas that cannot be protected during construction. When aerating the athletic fields, aerate at 6 inches to avoid puncturing the sprinkler system.
- vii) **IPM** - Use IPM design and construction practices to prevent pest problems. Avoid vegetation (shelter and food) and water sources next to buildings. Properly seal entryways and envelope breeches. Refer to the IPM policy for more information.
  - (1) Specify sheet mulch or overseeding for weed control. (Sheet mulch has three layers: compost/manure, overlaid with a weed barrier, overlaid with seed-free mulch.)
  - (2) Use organic-based natural pre-emergents (such as corn gluten meal), if any are needed.

c) **Water Conservation**

- i) **Landscaping** - Design landscapes such as the campus rain garden that do not require a supplemental water supply (termed “xeriscaping”) after they are established.
- ii) **Rain barrel** - When irrigating landscaped areas, use rainwater collected in the rain barrel(s) on campus.
- iii) **Recharging and reusing** - Consider the use of dry wells, gray-water systems, and permeable materials in new construction, to facilitate the recharging of groundwater and use of non-potable water where possible.
- iv) **Irrigation systems** – RVCC will follow LEED water conservation guidelines and installing only native plants and no sprinkler systems for landscaped areas, with the exception of the athletic fields. RVCC recently installed a high-efficiency sprinkler system with moisture sensors and timer control on the athletic fields. Settings for this or future replacement systems should conform to guidelines below. For irrigating the organic garden, consider drip irrigation.
  - (1) Use EPA WaterSense certified equipment and irrigation professionals.
  - (2) Specify weather-based/automatic/self-adjusting irrigation controllers that include a moisture and/or rain sensor shutoff.
  - (3) Do not specify sprinkler and spray heads for areas less than 8 feet wide; avoid mist settings to increase accuracy.
  - (4) Specify and install irrigation equipment with an operational distribution uniformity of at least 80% for at least 75% of non-turf irrigated areas; examples include drip irrigation equipment and bubblers.
  - (5) Specify and install equipment with a precipitation rate of 1 inch or less per hour and an operational distribution uniformity of 70% or greater for all turf areas.

**d) Water Quality**

- i) **River Friendly** - RVCC has paid significant attention to water quality with its efforts to achieve and maintain River Friendly certification. Following River Friendly guidelines and continuing to implement the actions specified in recertification will help us to continue improving water quality on campus. See the River Friendly documentation for more information.
- ii) **Minimize impervious surfaces** – Where possible, install permeable paving, gravel, or other porous surfaces. (EPA recommends pervious surfaces for at least 25% and preferably 50% or more of the paved area. EPA recommends that no impervious surfaces should directly connect to the storm drain.)
- iii) **Capture and filter storm water**
  - (1) RVCC captures a significant portion of its stormwater in stormwater basins. The EPA recommends directing, capturing, and filtering at least 85% and preferably 100% of stormwater into bioswales (vegetated drainage courses with sloped sides), infiltration planters, detention basins, stormwater wetlands, green roofs, or other options that reflect landscape stormwater best management practices.
  - (2) For bioswales, specify flat bottoms of at least 18 inches across and/or rock cobble at points of concentrated flow; do not put turf in bioswales.

**e) Wildlife Habitat**

- i) River Friendly certification also addresses wildlife habitat. RVCC will continue to provide water and shelter for wildlife, such as birdhouses, boulders, logs, large native shrubs, and trees. See River Friendly documentation for details.
- ii) **Conserve or restore natural areas and wildlife corridors:**
  - (1) Specify landscape design to preserve at least 80% of existing mature healthy trees, with contracted remediation for destruction of protected trees included in the construction contract.
  - (2) Specify landscape design to increase open space on site and/or to connect the site to other open space or wildlife corridors.
  - (3) Specify the creation or protection of a diverse plant buffer of low-maintenance vegetation along creeks, shorelines, or mono-cultured landscaped areas. Continue to maintain no-mow areas along the pond stream.

## 2) Planting

### a) Waste Reduction

- i) **Select low-maintenance/slow-growing native plants** and grasses to reduce landscape maintenance and waste.
- ii) **Plant right for the site:**
  - (1) Choose and locate plants to grow to mature size within allotted space and avoid shearing.
  - (2) Choose native species for at least 75% of all non-turf plants, and preferably 100%; do not plant invasive species (for more information, see [www.invasives.org](http://www.invasives.org)).
  - (3) Ensure that 100% of the non-turf palette will require no irrigation once established.

### b) **Soil** - Amend the soil with compost before planting.

- i) Specify quality compost as the soil amendment, at rates indicated by a soil analysis, to bring the soil organic matter content to a minimum of 1 inch of quality compost or at least 3.5-5% or more by dry weight.  
(EPA recommends specifying the use of compost from processors that participate in the U.S. Composting Council Seal of Testing Assurance Program.)

### c) **Water Conservation**

- i) Minimize turf space.
- ii) Turf should not be installed in medians or areas less than 8 feet wide.
- iii) Turf should not be installed on slopes exceeding 10%.
- iv) Total turf area should be limited to a maximum of 15-25%, with sports or multiple use fields exempted.

### d) **Energy Conservation**

- i) **Provide shade to control building temperatures** – Protect existing trees and/or specify new trees such that at least 50% of west-facing glazing and walls will be shaded at 4:00 p.m. in September by deciduous trees in their mature state.

- ii) Plant trees as possible to shade the paved site area, and ensure that at least 1 tree species is a large-stature species.

**e) Wildlife Habitat**

- i) Specify native plants for non-turf plants.
- ii) Diversify plant species:
  - (1) Landscapes less than 20,000 square feet should have at least 20-30 distinct species.
  - (2) Landscapes with 20,000-43,560 square feet (1 acre) should have a minimum of 30-50 distinct species.
  - (3) Landscapes more than 1 acre should include at least 40 distinct species, with 1 additional species per acre.
- iii) Adhere to RVCCs IPM policy.

### 3) Materials and Energy Management

**a) Waste Reduction**

- i) Use salvaged items where possible, and donate extra, usable plants and materials.
- ii) Consider using non-plant landscape materials made from Forest Stewardship Council certified wood or recycled material (e.g., plastic or composite lumber).
- iii) Consider recycled content plastic lumber rather than pressure-treated wood to extend the usable life of decks, benches, and outdoor structures.
- iv) Use local compost and mulch recycled from organic materials such as plants or wood waste.
- v) Continue to structure waste disposal contracts to incentivize waste reduction, composting, and recycling; pay a weight-based rate or switch to less frequent pickups.
- vi) Continue to send organic materials to a facility for composting or transition to composting on site.
- vii) Continue to provide recycling receptacles next to trash receptacles.
- viii) Return wooden pallets and other shipping materials to the supplier whenever possible; take apart non-returnable wood pallets to reuse the wood as edging around plant beds or as mulch.
- ix) Deconstruct, reuse, and recycle all possible materials, such as metal, wood, shingles, concrete, and pavement, when replacing an existing non-plant structure.
- x) Recycle used oil and tires from vehicles and equipment.
- xi) Continue to track recycling data and identify ways to improve our waste reduction program.

**b) Energy Conservation and Emissions Reduction**

- i) Design lighting carefully:
  - (1) Specify low-energy fixtures for all site lighting.
  - (2) Consider solar photovoltaic lights for all path lighting and at least 50% of other site lighting.
  - (3) Reduce light pollution - New exterior luminaries should emit no light above horizontal or should be certified with the International Dark Sky Association Fixture Seal of Approval.
  - (4) New side and other exterior building lighting should not cast direct beam illumination onto adjacent properties or rights of way.
- ii) Choose and maintain equipment for fuel conservation:
  - (1) Use fuel-efficient and alternative fueled vehicles and equipment (e.g., compressed natural gas, propane, or electric) for 15% of vehicles and equipment, as per the EPA MOU.

- iii) Schedule regular equipment maintenance to increase energy efficiency; clean equipment with compressed air whenever possible.
- iv) Consider reducing heat island effect with cool site techniques (follow link for information) on at least 50% of the paved site area.
- v) Reuse materials on site and purchase locally to reduce transportation costs and emissions; 100% of any stone and non-concrete hardscape materials should be produced within 500 miles of the project site.

## 4) Site Maintenance

### a) Waste Reduction

#### i) Keep plant debris on site

- (1) **Grasscycle** – Continue to leave grass clippings on the turf to decompose quickly and act as a natural fertilizer.
- (2) **Compost plant debris** on site. Non-woody plant debris could be composted by the organic garden. (Contact the faculty sponsor of the organic garden.)
- (3) **Produce mulch** – Leaves and/or plant debris less than 4 inches (including cut or chipped wood waste and tree clippings) should be re-incorporated into the mulch layer of landscaped areas away from storm drains.

#### ii) Separate plant debris

- (1) If plant debris cannot be used on site, separate it from other refuse and take it to a facility where it will be used to produce compost or mulch.
- (2) Donate healthy plants to a local nonprofit or other organization when reconfiguring or removing trees and shrubs from the landscape.

### b) Soil

- i) Protect the soil from compaction; do not work with the soil when it is wet.
- ii) Following the IPM policy, feed soils naturally and avoid synthetic fertilizers:
  - (1) Top dress turf with finely screened quality compost after aeration 1-4 times per year.
  - (2) Use compost, compost tea, or other naturally occurring, non-synthetic fertilizers as plant and soil amendment for all landscape areas.
  - (3) Mulch regularly to a minimum depth of 2-4 inches.

### c) Water Conservation

- i) Improve water absorption and retention by adding compost to the soil and mulch over root zones. (Avoid mulch volcanoes around tree trunks, as this encourages rot.)

### d) Water and Air Quality

- i) Follow the IPM policy to reduce the use of chemicals.
- ii) RVCC will do no landscape irrigation. Only the athletic fields and the organic garden will be irrigated, with a well-sourced system (so water cost is not an issue). To encourage healthy turf and discourage disease while adhering to the IPM policy, follow these watering guidelines:
  - (1) When an irrigation system was installed, the contractor should have provided a precipitation rate for each valve zone, area calculations for each irrigation zone, and the irrigation plans, including the location of irrigation supply shutoff and the Web address for watering index information. Ensure that the precipitation rate settings are properly maintained.
  - (2) Check irrigation equipment regularly; have a professional check the system every 2-3 years to avoid leaks and damages.

- (3) Repair sprinkler system leaks and damages quickly to avoid wet areas, field playability issues, and turf diseases.
- (4) Similarly, ensure that the sprinkler system's moisture sensor is utilized, to avoid watering when wet
- (5) Water at dawn before the dew has dried and the temperature encourages evaporation. This also discourages disease.
- (6) Water deeply and less frequently; deep watering grows stronger, larger roots that are better equipped to withstand drought. (More frequent watering may be required during the heat of July and August.)
- iii) Continue to mow grass to 3 inches high. Taller grass blocks the sunlight and grows deeper, healthier roots that can compete well against weeds.
- iv) Overseed turf so weeds will not have any room to grow. Per guidance from Rutgers, overseed with perennial ryegrass and/or tall fescue.
- v) Seed bare and worn turf spots to avoid erosion. Perennial ryegrass is particularly suited for quick repairs.
- vi) **Grasscycle** – Leave grass clippings on the turf to decompose quickly and act as a natural fertilizer.
- vii) Use mulch around trees and in flowering beds to help the soil retain water.
- viii) Return unused or excess chemical product to the supplier, if possible; otherwise, contact the local solid waste agency and state pesticide disposal program for guidance.
- ix) Repair all equipment oil leaks immediately and away from the landscape site.
- x) Consider using biobased lubricants on landscape maintenance equipment.