Colorado Mountain College Groundskeeping Guidelines

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Table of Contents

Part 1

The Situation

1.1 Opportunities

With its widespread geographical presence throughout western Colorado, CMC as an institution has the opportunity of being a leader in changing the way the state's businesses and organizations treat natural resource use and management as a whole. With a grounds policy that includes goals of decreasing water usage and waste, using sustainable products that do not disrupt natural cycles, promoting pollination, and planting of native vegetation, CMC will have a proven record of acknowledging and protecting Colorado's natural resources.

1.2 Risks and Barriers to Change

Currently, consistency across the campuses in regards to groundskeeping appears to be a result of managing for similar climatic and environmental conditions. For example, multiple campuses practice landscape management aimed at water conservation, and many are dealing with similar pest problems and noxious weeds including ground squirrels, white top, and oxeye daisies. However, there is no existing document or policy for groundskeeping that ensures cross-campus consistency.

Therefore, the chances of sustainability being integrated into grounds operations are low if the school does not develop and implement a comprehensive grounds policy college-wide. This policy is necessary for CMC to reach its goal of becoming a more sustainable institution. Without it, CMC risks failing to act as a whole in making the right decisions for the long-term sustainability of Colorado's natural resources and missing a marketing opportunity to be an institutional leader and tie sustainability to all aspects of the CMC brand.

Evident barriers to integrating sustainable practices into groundskeeping without a policy may include but are not limited to:

1) The lack of a centralized list of groundskeeper and supervisor contact info that may encourage collaboration and best practices across campuses
2) Costs
    - Recommended actions include some with substantial up-front investment
    - Thorough analysis is needed to justify costs

3) Lack of time and labor available to do the research required to make more sustainable choices
4) Needing to use up previously purchased products that are not environmentally friendly
    - Steamboat would like to switch to sustainable products, but have been told to use what they have. (Cost-restrictive)
5) Contracts with external maintenance providers that do not include a sustainability clause of some sort
    - Breckenridge, Edwards, and Rifle all use contractors

1.3 **Acreage Information** as of February 23, 2015

	Total Campus Acres	Irrigated Acres	Xeriscape Acres	Pavement Acres	Number Main Buildings	Total Building Square Footage
Aspen	2.3	0.5	0.5	0.9	1	33,000
Breckenridge	16	1.15	0.46	3.75	1	36,760
Buena Vista	36	0.16	0.07	1.01	1	7,988
Carbondale	0.6	0	0.1	0.3	1	9,900
Dillon	1	0.14	0.06	0.68	2	19,660
Edwards	16	1.61	0.92	3.64	1	67,997
Glenwood Center	4	0.07	0.21	0.91	1	35,605
Leadville	254	1.03	0.92	3.65	7	108,391
Rifle	38	0.96	0.75	2.5	1	39,333
Spring Valley	811	23.04	10.6	6.27	10	173,189
Steamboat	66	1.57	2	4.02	4	171,005
Central Services	35.3	0	0	0.53	1.5	55,070
TOTALS	1,280.2	30.23	16.59	28.16	31.5	757,898

Spring Valley sports fields are included: 435,600 square feet (approximately 10 acres)

Central Services Includes: 802 Grand, 815 Cooper/Cooper Commons (garage and 2nd floor open space) and Montezuma Land (35 acres)

Part 2

College-wide Policy Recommendations

Landscape Management and Plant Stewardship

CMC shall develop a comprehensive grounds policy that applies to AASHE STARS credit OP 10: Landscape Management (2 points available). This includes, but is not limited to, an Integrated Pest Management (IPM) Plan, Sustainable Landscape Management Program, and Organic/Certified/Sustainable products:

2.1 CMC shall manage pest problems through **Integrated Pest Management (IPM)** and develop **pesticide purchasing guidelines**.

"IPM is a decision-making process and set of actions to determine if, where, when and how pest problems will be managed. An IPM program includes all potential pest control strategies but focuses on non-pesticide controls whenever possible." [4]

- This will lower toxicity levels on campus grounds and increase efficiency by diminishing unnecessary application in unaffected areas
- After concluding that a pesticide is necessary, guidelines will help purchasers consider the environmental effects of the preferred choice pesticide, and if any effective alternatives exist that are less toxic to the environment.

2.2 CMC shall practice **sustainable snow and ice removal** by using Ice Slicer™ Granular Ice Melt for roadways and minimizing the use of less environmentally desirable products in other targeted areas.

"Ice Slicer is a mined mix of magnesium calcium, sodium, and potassium chlorides along with trace minerals. It is less costly and corrosive than other commonly used compounds, which are known to leach into and change the composition of soils and groundwater, it's widely acknowledged as a more environmentally preferable option." [1]

- CMC will make use of less preferable options, such as liquid magnesium chloride, minimal and kept only to target areas, such as steps and ramps. (Adopted from AASHE STARS report, Colorado College)
- Using Ice Slicer will decrease the chances of altering soil chemistry and toxifying groundwater, improve efficiency in snow removal, and promote soil stewardship.

2.3 CMC shall install and maintain **centralized irrigation computers**.

If purchasing is found to be cost-effective, all campuses in need of irrigation will acquire and maintain irrigation systems similar to Rainbird at Steamboat.

- The computers will help provide efficient watering, as staff will monitor the systems to ensure there is no over-watering or poorly timed watering occurring.
- This approach will decrease overuse of water for irrigation, therefore lowering costs and increasing efficiency.
    - Especially important for Leadville, where water costs are extremely high for their irrigated green space

2.4 CMC shall significantly increase **xeriscaping** in landscaped areas.

Xeriscaping can be defined as landscaping and gardening that reduces or eliminates the need for supplemental water from irrigation.

- Limit grass to activity areas to cut down on water usage and irrigation
    - In regards to aesthetic “needs” for sod at entrances, it will only be allowed on campuses with municipal requirements.
    - A list of native forbs will be made available to all groundskeepers
- Goal of all native vegetation by a certain year, with the exception of edible landscapes, permaculture food growing and activity areas
    - Native flowers chosen to attract pollinators
    - Will decrease water costs and have positive effects on campuses with large bee populations.

2.5 CMC shall practice **edible landscaping** where applicable.

Edible landscaping is the practical integration of food plants within an ornamental or decorative setting. Many students and faculty on some campuses have expressed interest in being involved in permaculture design and other approaches to sustainable food growing on school grounds, and these activities will provide opportunities for campus learning labs, involving classes, clubs, student teaching, and internships. Edible landscaping also may provide for numerous community partnership opportunities.

AASHE STARS points edible landscaping will apply to if integrated:

EN 9: Community Partnerships (3 points available)
EN 1: Student Educators Program (4 points available)
EN 12: Community Service (5 points available)
AC 5: Immersive Experience (2 points available)
AC 8: Campus as a Living Laboratory (4 points available)
EN 3: Student Life (2 points available)
EN 2: Student Orientation (2 points available)

- If long-term viability of consistent food production is possible, in regards to climate and labor constraints, edible landscaping will be initiated.
- Edible landscaping will decrease dining and catering costs if harvests are successful and production is compliant with health codes.

According to Teresa Watkins, environmental consultant, horticulturist, and writer for *Green Builder Magazine*, "Edible landscaping will require average to above average maintenance and water use, depending on the percentage of edibles used, normal rainfall and seasonal changes."[5] Therefore, increasing water usage in targeted areas for food production may slightly increase water costs. However, the resulting educational opportunities, reduced dining and catering costs, as well as potential income generated from farmers markets or campus sales will outweigh any higher irrigation costs incurred.

2.6 CMC shall incorporate sustainability into all **fertilizer purchases and practices**.

Fertilizing with local compost, compost created from on-campus waste, or organic products will significantly reduce soil and groundwater toxicity while promoting sustainable waste cycling strategies. This approach could reduce costs in the long-term if on-campus compost is created and applied.

- Use compost from each campus
- No environmentally harmful products
    - Products must be organic or ecologically sound in order to count for AASHE STARS points
- Use mulch from forestry programs where applicable

2.7 CMC shall **integrate sustainability into all external contracts**, in compliance with the groundskeeping policy.

Contracts signed with maintenance providers will include the guidelines laid out in the college landscaping and grounds policy. Sustainability clauses in contracts will prevent unsustainable purchasing and application decisions made by contractors. For example, contractors cannot use environmentally harmful pest control and fertilizing products.

2.8 CMC will conduct regular **biodiversity assessments**.

In order to earn points in the biodiversity category of AASHE STARS reporting (OP 11: Biodiversity, 1-2 points available), CMC must evaluate:

- How its operations impact legally protected and environmentally sensitive areas adjacent to campuses
- Whether local species that are vulnerable, endangered, threatened, or ecologically significant are living on or near CMC property
    - Must create a list of these species that is easily updated, as species are likely to change status over the years

References

1. Colorado College, AASHE STARS Report

    a. Grounds OP-10
    b. Grounds OP-11

2. Colorado State University, AASHE STARS Report

    a. Grounds OP-10
    b. Grounds OP-11

3. The City of Shoreline, WA, Environmentally Preferred Purchasing Guidelines 2012

    Guidelines PDF

4. City of Seattle Parks and Recreation, Best Management Practice (BMP) Manual 2005

    Chapter 3: Integrated Pest Management PDF

5. Teresa Watkins, “The Edible Landscape”

    Article from *Green Builder Magazine*