GCCCD Sustainability Plan

Fall 2017

GCCCD endeavors to become a model and classroom for sustainability for students, faculty, staff, and the community. With that as an aim, GCCCD uses the following as a guide to achieve each of its six sustainability goals, which are to:

- Be local and regional leaders in training the green workforce
- Reduce, reuse and recycle; Improve environments for working and learning
- Be responsible and accountable for water use and management
- Strive for energy independence with collective consciousness
- Foster environmental stewardship and economic prosperity.

1. Waste Reduction

Every stage of a food or product's life cycle – growth, extraction, manufacturing, distribution, use and disposal, indirectly or directly contributes to the concentration of greenhouse gases (GHGs) in the atmosphere and affects the global climate. Waste reduction thus presents a significant potential for decreasing GHG emissions.

a. Reducing Consumption

Reducing consumption presupposes recycling, and is the most effective form of waste mitigation. This component of sustainability requires a culture of conservation as foresight and conscientiousness is at the core of mindful consumption. GCCCD will utilize education campaigns as a strategy to catalyze behavior change. Additionally, GCCCD supports careful monitoring through audits, and specified allocation of resources where possible- water management and on-campus dining are examples of places where resource portioning will be effective in reducing consumption.

b. Food Waste Reduction

Waste from Food is a major contributor to landfill. On average, 75% of the material in landfills today could be composted or recycled. Further, 50-70% of the weight of waste from foodservice consists of compostable food items. Districtwide there is opportunity to reduce food waste and reduce associated costs through implementing sustainable practices including, but not limited to:

1. Waste Assessment
2. Implementation of Recommendations Stemming from Waste Assessment
3. Composting programs
4. Kitchen staff training
5. Reorganization of the kitchen workspace layouts to reduce food waste
6. Districtwide education and training

c. Plastic Reduction

Elimination of use of plastic on campus is ideal. Encouraging use of water refilling stations is one of the tools GCCCD will use to facilitate the change from single use plastic bottles to a

culture of conservation where staff and students bring their own refillable bottles. To encourage this change, GCCCD intends to:

a. Encourage use of refillable bottle stations by posting maps with marked locations throughout campus and on the website
b. Educating students and staff in regards to the waste associated with single use plastic bottles and the refillable stations whereabouts
c. Removing vending receptacles which provide single use plastic bottles from campus
d. Removing plastic drinking straws and other single use plastic cutlery/packaging from campus and replacing with biodegradable, more sustainable options.

d. Recycling Improvement

Recycling Awareness, or education in regards to why recycling is important, what is and isn't recyclable, and where to recycle which materials, is the first step in promoting a culture with good recycling habits. With education in mind, GCCCD will work to promote continuous education campaigns to raise awareness and encourage compliance with ideal recycling practices.

Recycling Programs pose an opportunity to at once educate and to enable better recycling. GCCCD has opportunity to provide improved:

1. Electronics recycling
2. Paper and plastic recycling
3. Clothing recycling

e. Computer policies

Computer Policies will have a dramatic effect on energy conservation. With over 3,600 computers Districtwide, optimizing energy conservation measures and behaviors will facilitate significant savings. The Sustainability Program recommends the following:

1. Faculty and staff turn off computers at night, over weekends, and when they are not in use for two or more hours during the day.
2. Turn off monitors when computers are not in use for 15 minutes or longer.
3. Enable the Power Management feature for monitors.
4. Utilize Energy Management Sign Off sheets for all computer labs without auto-shut off software to ensure that labs are fully shutdown at the end of each day.
5. Utilize software to enable auto-off options for labs when possible.

f. Printing policies

GCCCD recognizes the direct relationship between consuming paper and environmental destruction. Moving forward GCCCD encourages all members of the community to live as "paperless as possible" and ensure that all paper and paper products are recycled. Looking ahead, GCCCD aims to reduce the volume of paper consumption to the point where the cost of purchasing only 100% recycled paper is offset by reduction in purchased volume. The following include GCCCD's printing recommendations to staff and students:

1. Refraining from printing whenever possible
2. Take and store meeting notes digitally
3. Use print preview to only print the pages you need

4. Print and copy on both sides of the paper
5. Post the syllabus and other documents electronically
6. Use previously printed paper for scratch paper
7. Send and receive faxes from your computer
8. Print multiple images per sheet for PowerPoint slides
9. Use black rather than colored ink (since it is easier to recycle)
10. Use smaller margins on documents
11. Before printing, remove blank pages
12. Print in draft mode (it conserves ink)

2. Sustainable Purchasing

a. Sustainable kitchenware

Sustainable Kitchen and Dining Ware present an opportunity to manage the upstream and downstream impacts of food service through "pre-cycling" or source reduction, as well as choosing products that have minimal associated environmental costs. Districtwide, GCCCD food service has the opportunity to drastically reduce the amount of plastic which goes into landfills through:

1. Purchasing and using biodegradable drinking straws and cutlery instead of plastic straws and cutlery.
2. Wrapping sandwiches to-go in paper bags rather than plastic boxes.
3. Purchasing and using biodegradable plates rather than plastic coated, non-biodegradable plates.
4. Encouraging Staff and Students to bring their own reusable coffee cup through offering discounts on coffee in personal mugs.
5. Implementing a reusable takeout container program.

b. Organic and local food

Organic and Local Food should be prioritized as the benefits to the environment, to human health, and to the local community are far reaching. Organic food is grown without the addition of man-made chemicals, additives, fertilizers, or pesticides. Chemicals not only have an associated carbon and toxicity footprint in their creation, but have detrimental impacts to the environment as they are incorporated into the biosphere. Local food, as opposed to food grown far distances, not only also has a smaller carbon footprint associated with transportation, but supports the local economy. With thousands of students and staff eating at campus based dining facilities each day, Districtwide there is an enormous opportunity to reduce these often unrecognized impacts. GCCCD has the opportunity to:

1. Prioritize purchasing of organic food.
2. Prioritize purchasing of food from local sources.
3. Modify menu offerings based on seasonally available crops.

c. Recycled paper

Recycled Paper and reducing paper consumption is a priority in cutting waste. There are several strategies GCCCD can support in order to reduce this waste source, including but not limited to:

1. Ensure that there is a recycling bin beside each waste receptacle

2. Provide clear and consistent messaging and education regarding what is and what is not recyclable
3. Support double sided printing, which can cut paper use by 50%
4. Prioritize purchasing paper with the highest recycled content feasible.

3. Building Energy Management

a. Optimizing Building Use

Optimizing Building Use and energy use within buildings is the keystone of an energy conservation program. This concept requires foresight in planning schedules, accountability of occupants to use the buildings when they are scheduled, and constant auditing and adjusting of building spaces. Further, it requires flexibility on behalf of faculty and staff in adjusting their classroom and office locations.

1. Consider HVAC zonal maps when scheduling classes outside of the time period with full capacity. Ensure that if the central plant is running, all other activities and classes are scheduled on the central plant, and, ideally in the same building and zone as each other.
2. Implement an unoccupied-periods approval process for HVAC requests which considers demand costs, HVAC zones, the nature of the request, and the energy intensity use of the request.
3. Consider implementing a "repercussion" for request for HVAC scheduling which is not ultimately used.
4. Ensure that offices are located in HVAC-efficient locations. If, for example, there is an office location which requires an entire floor or building run when it could otherwise be dormant, prioritize relocating said office.
5. Ensure that during non-peak class times as many classes as possible are scheduled for the same building and zone.

b. Implementing Building Management Best Practices

Implementing Building Management Best Practices in this section has to do primarily with HVAC programming and is reflective of the Districtwide Standards and Guidelines as laid out in the Tech Standards supportive of Board Policy 3260 and Academic Policy 3260. As HVAC equipment is responsible for roughly 60% of total electricity expenditure it posits an enormous opportunity for energy savings when it is managed conservatively.

1. Ensure that temperature set points are within the recommended range. For GCCCD, the temperature range is 68-74 for occupied hours, and 55-90 for unoccupied hours.
2. Ensure that HVAC schedules are updated and trimmed to match occupied times as possible.
3. Do not schedule equipment start earlier than absolutely necessary for a building to be appropriately conditioned for occupants to arrive. Utilize both temperature trends available through EMS and data loggers to confirm how long the HVAC must run in order to condition each space.
4. Remove Optimal Start where it is scheduled. If removing is completely out of the question, limit optimal start to one hour maximum.

5. Continuously monitor and test OA dampers for failure.
6. Run exhaust fans in tandem with building occupancy; ensure they are turned off during unoccupied times.
7. Modify chilled water supply temperature based on seasonal load requirements.
8. Modify static pressure in VAV systems based on season and whether HVAC is providing heating or cooling predominantly throughout the day.
9. Adjust other HVAC settings as appropriate and as technology allows.

c. Lighting Management

Lighting Management is an ongoing project for energy managers and electricians. It requires careful monitoring of spaces- how they are being used, when, for how long, and in what capacity. Optimizing lighting for specific uses will ensure that the minimal amount of electricity required is used, ultimately reducing costs.

1. Ensure that the minimal exterior lighting required for CAPS and Operations safety is utilized when the campus is closed after 11pm.
2. Continuously monitor the outdoor lighting set up and update Wattstopper so that the lighting is programmed for optimal energy usage.
3. Where possible, ensure that all indoor lighting is off during unoccupied times. Where it is not possible to have all indoor lighting off, utilize half or low lit schedules.
4. Continuously audit to find opportunities for lighting upgrades and LED replacement projects.

d. Shutdown Optimization

Nightly and Weekend Shutdowns are as important to an effective energy conservation program as they are indicative of a culture of conservation and sustainability. At first this initiative will take concerted effort, reminders, and follow ups; eventually this daily shutdown will be a way of life and will carry over into other conservation initiatives.

1. Implementation: Daily shutdown lists provided to each department.
2. Follow Up: Weekly shutdown follow ups, either a “thumbs up” or “thumb sideways” to indicate a great shutdown or a “could use improvement.”
3. Tracking: Sustainability Specialist will keep track of how many and what type of follow ups are given.

4. Water and Ecological Design

a. IMAP and Water Management

Without a plan and careful monitoring it is easy to over-water certain landscapes. GCCCD has opportunity to reduce watering through assessing evapotranspiration (ET) rates for each landscape on campus, and adjusting watering schedules accordingly. Additionally, GCCCD benefits from identifying landscapes, and in particular turf landscapes, for removal and replacement with less water intensive crops. Cenergistic provides an Irrigation Management Action Plan (IMAP) to assist with projected savings based on these recommendations.

b. Native Plants

The benefit of using native plants over non-indigenous species is multifaceted. Not only are native plants adapted to the local environment, allowing them to thrive in minimal irrigation

beyond normal rainfall, but they require less maintenance, little to no fertilizer and/or pesticides, and they support the local ecology through providing wildlife refuge for birds and insects which are "made for" the native environment. GCCCD prioritizes using native plants over nonindigenous species wherever possible and is committed to upholding the natural local ecological balance.

c. Low Impact Development (LID) Technologies

LID technologies refers to building design and systems which mimic natural processes in order to preserve and compliment the natural ecosystem as much as possible. GCCCD is committed in theory and in practice to utilize LID technologies, such as rain gardens, rain barrels, permeable pavements, and vegetated rooftops in order to maintain the local watershed's hydrologic and ecological functions.

5. Culture of Sustainability

a. Eco Reps

Eco Representatives Program is an initiative to support development of a sustained culture of conservation. An Eco Rep position is a voluntary position representative of each department or "area" within buildings at GCCCD. The Eco Rep is seen as an "energy champion" and leads their department in compliance with sustainability program recommendations, and in particular, assist with shutdowns on a weekly basis, and sign off on the "shutdown checklist" prior to each extended holiday break.

b. Sustainability Club

The Sustainability Club, renamed "Sustainability Earth Alliance (SEA)" at Grossmont, is a student lead club focused on bringing sustainable initiatives to the forefront of campus life. The club meets bimonthly and focuses on implementing sustainable change as well as volunteerism within sustainability realm.

c. Weekly Energy Tips

To promote a culture of sustainability and energy conservation, education is first and foremost. Through providing weekly energy tips, the sustainability program at GCCCD stays top of mind for faculty, staff and students. Weekly energy tips range from topics such as how often one should turn off their computer, to how to reduce energy consumption while doing laundry at home.

d. Quarterly Newsletter and Communications

The Quarterly Sustainability Newsletter provides an overview of accomplishments of the sustainability program, notable upcoming sustainability-related events, and answers to questions submitted to the "Conservation Corner" Q&A mailbox.

e. Website

Web presence is vital to any successful initiative. The sustainability program should have a current webpage linked to the public, Districtwide site, and appear in search engine searches. The website should clearly state the intention, progress, and current initiatives being pursued by the sustainability program at GCCCD.

6. Green Building and Renewable Energy

a. Green Building Design

Green Building Design is fundamental to a sustainability aim. GCCCD's Districtwide standards encourage sustainable features and processes to be considered in all aspects of new construction. Ensuring that these are followed will lead to a more efficient, sustainable campus in the long term.

b. Solar Photovoltaic Energy

Solar PV is the most readily available and affordable, zero-carbon emission source of electricity currently. Not only does solar PV support economic goals for GCCCD, in lessening electric demand costs, but it is the surest way of reducing carbon emissions Districtwide. GCCCD aims to acquire, whether by lease or purchase, a solar array to offset a significant portion of electric usage from the traditional grid.

c. Battery Storage Systems

Battery storage is becoming an ever more key component to solar systems. With or without solar, battery storage systems pose an enormous opportunity to avoid ever increasing demand charges from the utility. By managing and deploying battery-stored electricity during peak-demand hours, GCCCD stands to avoid tens of thousands of dollars each month in demand charges.

d. Sub-metering of Buildings

Sub-metering of Buildings is the surest way to determine precisely how much energy each building is using at a given time. With this information, Energy Specialists are able to identify opportunities for energy savings and efficiency updates. Prioritizing sub-metering of buildings in the next round of energy efficiency projects would be in line with a culture of conservation and beneficial to the longitude of an energy management strategy.