Campus Operations
Inventory and Timeline of Sustainability Initiatives

Illinois Sustainable University Compact

In December 2008, Waubonsee Community College signs on to join the compact and pledges to accomplish the following four goals:

- Complete at least one storm water management project.
- Increase the overall waste recycled on campus by at least 13 percent.
- Purchase non-toxic cleaning products whenever practical.
- Compost at least 5,000 cubic yards of the organic waste produced on campus.

Timelines for Campus Operations Sustainability Initiatives

Buildings

- April 16, 1994 – Public Act 83-1363 requires every publicly funded institution of higher education in the state to have submitted a comprehensive waste reduction plan by January 1, 1995. This study was completed by Patrick Engineering, Inc. This plan is designed to achieve a 40 percent waste reduction in the amount of solid waste that is generated by the institution and identified in the waste reduction plan as being subject to landfill disposal. This act further requires that this plan be updated every five years. Waubonsee completed its third waste reduction study in the fall of 2009 in order to meet the Illinois Department of Commerce and Economic Opportunity deadline of January 1, 2010.
- 1998 – Campus Operations began using the blue recycle bins for paper disposal, and the college continues this practice today.
- 1999 – Campus Operations enters into a service agreement with Safety Kleen for the removal of leftover paints and solvents that are reclaimed in the process of body work, painting and detailing for student instruction. This hazardous material will be utilized as an alternate fuel source for process heating.
- 1999 – Campus Operations makes arrangements with Kaluzny Brothers, Inc. for the removal of all deep fryer oil. This free service picks up the oil and recycles it for use in producing dog food.
- 1999 – Campus Operations and Auto Technology enter into a service agreement with Safety Kleen for removal of used motor oil, coolant and brake fluids that are reclaimed in the process of servicing college vehicles and equipment and generated by the students in the course of academic instruction.
- 2001 – Dale Willerth, Director of Campus Operations, is named Energy Manager of the Year by the Association of Energy Engineers Illiana Chapter.
- 2001 – Campus Operations and the Photography Department enter into a service agreement with Safety Kleen to remove photo fixer solution used to develop photos for academic instruction. These chemicals contain silver, which is illegal to add to the normal waste stream.
- 2002 – Campus Operations began using 50 percent recycled paper content for the use of multifold, kitchen roll, single fold and industrial roll towels. This still exceeds EPA guidelines. Currently all multifold and bathroom tissue is 100% recycled. As of 2010, we use 100% recycled paper products.
- 2002 – Campus Operations began using the Kai Vak steam cleaning system in the tile restrooms. Done twice each week, this cleaning process eliminates the need for deep-cleaning chemicals.
- 2005 - The 2020 College Master Plan has necessitated many office moves. Instead of using cardboard boxes, Campus Operations began purchasing “renta crates” with the first move in August 2005. For every crate produced, 10 trees are preserved and less waste is produced. Furthermore, using crates helps save on fuel and resources,

especially since they are less expensive than cardboard boxes. These crates have been used for all Sugar Grove, Plano and Aurora Campus moves.

- 2006 – Campus Operations purchased an electric forklift to help save on fuel costs.
- 2006 – The new Sugar Grove Campus west parking lot was built with permeable pavers to help minimize maintenance and improve storm water management. This is a regionally recognized project.
- 2006 – With the opening of the Academic and Professional Center, Campus Operations was involved in setting the building standard for paper products to be used in the Multipurpose Event Room. The use of biodegradable plates, bowls and table covers was established.
- 2007 – This is the year Campus Operations began using all green cleaning products. These products are a dilution system being used at all four campuses.
- 2007 – Campus Operations and Auto Technology enter into an agreement with Beaver Oil Company. They will take used motor oil, used coolant and used brake fluid at no charge for the purpose of recycling. After these fluids are processed, they will be resold to the public.
- 2008 – Campus Operations started purchasing Greenware cups for staff use. These cups are made from corn-based material and are 100 percent compostable and environmentally sustainable.
- 2008 – Campus Operations started purchasing bottled water in bottles made with 30 percent less plastic.
- 2008 – Campus Operations and Sodexo made an agreement with Kaluzny Brother, Inc. For no charge they will provide a container for the storage of used cooking oil and then collect it, clean it, and send it to Nova Biosource Fuels Inc., which manufactures biodiesel fuel from the oil.
- 2008 – Campus Operations adopted a policy to remove aerosol dispensing products where possible.
- 2008 – Campus Operations adopted a Green Seal policy product guide list for purchases.
- 2008 – Campus Operations Manager distributed a memo titled “Refuse and Recycling Management Practices at Waubonsee Community College.”
- 2008 – Campus Operations implemented two-sided printing in the department.
- 2009 – Campus Operations made the decision to no longer purchase Styrofoam plates and bowls for staff use. Paper products are now used in as many areas as possible.
- 2009 – Chief Plant Operator distributed a memo explaining single stream recycling.
- 2009 – Campus Operations initiated a change to purchase Green Seal foam hand soap. After trials with two product lines, college staff picked Aero Blue, and implementation was started immediately. Purel dispensers are in place for students and staff who prefer this method.
- 2009 – Green dispensing systems were reviewed on campus, and State Chemical was chosen as the best.
- 2009 - Any recyclable items, such as cans and bottles, must be placed in clear plastic bags for recycling. Campus Operations is in compliance.
- 2009 – Dale Willerth suggests recycling the asphalt from the north parking lot so it can be used in the temporary east lot. The material is ground and compacted on top of the gravel and then coated with oil to create a much harder surface and make for easier snow removal.
- The contractor L.J. Dodd participates in the Armstrong Recycling Program. Because of this program, 9,971 square feet of ceiling panels from the Dickson Bookstore remodel were diverted to the closest Armstrong manufacturing plant for recycling rather than landfilling. By recycling, we have contributed to the reduction of greenhouse gas emissions and the use of virgin materials, as well as to energy and water savings.
- L.J. Dodd recycled all metal studs from the Dickson Center Bookstore remodel.
- 2010- Added new water fountain that allows users to easily fill water bottles. The fountain also counts how many plastic bottles are saved.
- Dan Larsen, Manager of Buildings and Grounds, performed a complete audit of our recycling and refuse services with Waste Management. It was determined that by decreasing the number of general refuse (3, 6 yard dumpsters) containers and increasing the amount of recycling containers (same amount), the college could increase the amount of material it recycles while also cutting the waste bill by $400 per month.
- From August 2012 through April 2013, Waubonsee recycled 247 gallons of cooking oil through Filta reducing greenhouse gases by 5,033 lbs.

Plant Operations

- 1994 - 1995 – Chief Plant Operator Jeff Zedonis did a complete assessment of equipment and controls at the Sugar Grove and Aurora Campuses to make sure everything was working at maximum performance.
- 1999 – Campus Operations began recycling high intensity discharge light bulbs. The mercury contained in the outdoor lighting is recovered, and the glass and metal are recycled.
- 1999 – Campus Operations begins recycling ballasts**,** which contain lead solder; some of the older ballasts contained PCBs, which have special disposal requirements. The college had a large amount of these until 2005 when we retrofitted the T-12s to T-8s at the Aurora and Sugar Grove Campuses, resulting in huge energy savings, with a payback at about 2.5 years.
- 1999 – Campus Operations begins recycling batteries. Some rechargeable batteries contain mercury, so the mercury and heavy metals (lead) are recovered. All types of dry cell and wet cell batteries are recycled by R3 Environmental.
- 2000 – Lighting retrofits with green bulbs and energy efficient electronic ballast and T-8 bulbs, Phase 1, included Akerlow Hall, Weigel Hall and Building A. This project was funded through the Illinois Department of Commerce and Economic Opportunity.
- 2000 - 2005 – CFC (R-11) chiller replacements that use non-ozone depleting refrigerants. Absorbers, Collins Hall (2), Main Plant (2), Von Ohlen Hall (1) and Dickson Center (1). An additional absorber was added to the new Science Building in 2005.
- 2000 – Started the implementation of state-of-the-art Johnson Controls Energy Management System. This system controls all energy phases for the Sugar Grove and Aurora Campuses.
- 2001- Campus Operations begins recycling fluorescent lights. Indoor lighting contains mercury; the mercury is recovered, and the glass and metal are recycled.
- 2001 – Campus Operations recycles capacitors, which are used in HD lighting. These contain die-electric oil that is recovered.
- 2001 – Steam Plant decommissioning and hot boilers installation in Main Plant, Erickson Hall and Collins Hall. This reduced the chemical waste stream that was discharged to waste water while increasing the thermal efficiency, thus reducing greenhouse gas emissions.
- 2001 – Lighting retrofit, Phase 2, included Dickson Center, Collins Hall, Erickson Hall, Building W and Aurora Campus. This project was funded through the Department of Commerce and Economic Opportunity.
- 2004 – Campus Operations begins recycling of compact fluorescent lights. Indoor lighting contains mercury; the mercury is recovered, and the glass and metal are recycled.
- 2005 – Lighting retrofit, Phase 3, included Bodie Hall and Building X. This project was funded by the Illinois Department of Commerce and Economic Opportunity and the Illinois Clean Energy Community Foundation Grant.
- 2006 – Sugar Grove Campus Wastewater plant decommissioning and the new Fox Metro connection to the Water Reclamation District is completed, so discharging into the Blackberry Creek Watershed is stopped.
- 2007 – Erickson Gym lighting upgrade, paid for by the Illinois Clean Energy Community Foundation Grant.
- 2009 – Campus Operations began recycling pallets with Bahena Quality Pallets.
- 2009 – Campus Operations is in strict compliance with the Federal Clean Air Act requiring all plant operations personnel who maintain, service, repair or dispose of appliances that contain regulated refrigerants to be EPA 608 certified in proper refrigerant handling techniques.
- 2010 - Annual boiler combustion and efficiency testing program is performed on 15 boilers located at the Sugar Grove, Aurora and Copley Campuses. This annual boiler tuning assures proper gas combustion usage, efficiency and dependability of operation, as well as a safe workplace.

Sugar Grove Campus Grounds

- 1992 - Campus Operations grounds crew continues to mow with mulching blades. The grass clippings left behind by a mulching mower essentially function as a lawn fertilizer, as if applying compost to the lawn.
- 1994 – Campus Operations grounds crew began using "gator bags" as a more efficient way of watering trees on campus during droughts or planting of younger trees. These bags provide a slow drip and do not cause water runoff.
- 2001 – Wetland Restoration Project, part of the C-2000 Grant Wetland Enhancement Project.
- 2002 - Campus Operations begins mulching around trees and flower beds. Used for various agricultural and gardening purposes, mulches are applied to the soil surface. Properly used, they benefit plant growth and minimize garden labor. The main functions of mulches are the conservation of soil moisture and the moderation of soil temperature. They also help control the growth of weeds, reflect sunlight back from the ground to the leaves of plants, and provide a clean, dry surface for ground-lying fruits. They prevent soil erosion from heavy rains, surface run-off of water, and the direct impact of hard rains on the soil surface. Some mulch improves soil texture, adding humus. Humus is degraded organic material that causes some soil layers to be dark brown or black. The college continues to mulch on a yearly basis.
- 2004 – Campus Operations purchased a wood chipper. The wood chips are used to enhance paths in the woods and create paths used for construction projects. The main functions of mulches are the conservation of soil moisture and the moderation of soil temperature.
- In December 2008, the college entered into the Illinois Sustainable University Compact. One of the goals was to compost 5,000 cu/ft of organic waste by December of 2009. Campus Operations constructed a giant organic digester to help process this substantial amount of compost. The organic material consists of wood chips from downed limbs and trees processed through the wood chipper, leaves in the fall, excess grass clippings and food waste.

Sugar Grove Campus North Side Improvement Project – (information provided by James Forrester, Site Designer, JJR, Landscape Architects)

Sustainability was incorporated into the North Side Improvement project through the use of native plants.
Benefits of using native plants include:

- Preservation and restoration of native plant communities
- Evasion of introduction of invasive plant species that harm natural areas.
- Use of fewer resources because they are adapted to withstand typical regional conditions.
  - Little to no water requirement.
  - Low maintenance requirement.
  - Minimize or eliminate the need for fertilizer and pesticides, which in turn reduces runoff and non-point source pollution.
- Native plants produce long root systems that hold soil in place.
- Protect water quality by controlling soil erosion and moderating floods and droughts.
- Help support local wildlife, such as birds and butterflies.

Sustainability was incorporated into the Sugar Grove Campus South Side Improvement Project in the following ways:

- Huntoon Lake: Use of native plantings to stabilize the banks around the lake by controlling erosion, etc.
- An outlet control structure was added as part of the stormwater management system to help maintain proper water level in the lake.
- Bioswales in parking lot
  - The bioswales are designed to collect stormwater runoff from the adjacent impervious surfaces. This reduces rain runoff by allowing the stormwater to soak into the ground, where it is naturally filtered by plants and soil, rather than allowing it to flow over impervious surfaces.
  - The use of bioswales improves water quality by reducing the amount of erosion, water pollution, flooding and diminished groundwater.
  - Rain Garden - The rain garden is constructed differently than the bioswales but essentially serves the same purposes – to manage stormwater and filter pollutants.

Sustainability was incorporated into the Sugar Grove Campus East Side Improvement Project in the following ways:

- Again, through the use of native plants (see benefits listed above). Specifically, a native oak savanna restoration process was implemented as part of the project.
- Sustainability was incorporated into the stormwater management system for the new parking lot by methods of infiltration, runoff detention and local products.
- The surface of the new parking lot is a permeable paver system that allows runoff to infiltrate through the joints of the pavers, down through the supporting aggregate, directly into the detention facility.
- The detention facility is a precast concrete vault system that lowers the outlet volume of water and recharges the water table.
- Both the permeable pavers and the detention facility were manufactured within 25 miles of the campus.

New Downtown Aurora Campus (information provided by Bruce Cairns, of Cordogan, Clark and Associates)

- Construction Activity Pollution Prevention — An Erosion and Sedimentation Control (ESC) Plan was implemented for all construction activities associated with the project.
- Development Density & Community Connectivity — Development Density Building has been built on a previously developed site and in a community with a minimum density of 60,000 square feet per acre net.
- Public Transportation — Project is located within one-half mile of an existing commuter rail station and within one-quarter mile of one or more stops for two or more public bus lines usable by building occupants.
- Stormwater Design: Quality Control — A stormwater management plan is implemented that reduces impervious cover, promotes infiltration, and captures and treats the stormwater runoff from the average annual rainfall using acceptable best management practices (BMPs). A bioswale is incorporated in the site and pervious pavers are used for the driveway.
- Heat Island Effect: Roof — The building has a white roof with solar reflectance greater than 70 percent and thermal emittance greater than 80 percent.
- Light Pollution Reduction — For interior lighting, a majority of light fixtures have indirect lighting, reducing direct light outside the building. Generally, care was taken to orient light fixtures perpendicular to the exterior windows as much as feasible with the floor plan. Where this is not the case, lighting has automatic shut-offs to turn lights off after business hours. In fact, all non-emergency lighting is automatically controlled either locally (as in private offices) or from a master system (as in common areas). For exterior lighting, building-mounted fixtures wash certain exterior design elements with light as well as illuminate the egress path from the building. The façade illumination meets ASHRAE 90.1-2004. The ground lights are energy efficient LED type controlled from the building lighting control system and should not contribute adversely to the maximum vertical foot-candle levels allowed. Upper Riverwalk light fixtures also use LED lamps.
- Water Efficiency – Drought tolerant plants are used in landscaping to reduce water consumption.
- Energy and Atmosphere- Minimum Energy Performance – The building project is designed to comply with both the mandatory provisions of ASHRAE/IESNA Standard 90.1-2004 and the prescriptive requirements or performance requirements of ASHRAE/IESNA Standard 90.1-2004.
- Fundamental Refrigerant Management – Zero use of CFC-based refrigerants in new base building HVAC&R systems.
- Enhanced Refrigerant Management – Selected refrigerants and HVAC&R minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming.
- Materials and Resources: Construction Waste Management – Recycle and/or salvage non-hazardous construction and demolition debris. The masonry and stone of the prior buildings on site were reused and recycled.
- Recycled Content – Some examples of building materials that have recycled content are: fly ash used in concrete, carpet, steel, acoustical ceiling tile, gypsum board.
- Indoor Environmental Quality- Minimum Indoor Air Quality Performance – The project meets the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2004, Ventilation for Acceptable Indoor Air Quality.

- Environmental Tobacco Smoke (ETS) Control – No smoking is allowed in the building.
- Outdoor Air Delivery Monitoring – Monitoring systems are permanently installed that provide feedback on ventilation system performance to ensure that systems maintain design minimum ventilation requirements.
- Construction IAQ Management Plan - During Construction and Before Occupancy – Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and preoccupancy phases of the building.
- Low-Emitting Materials - Paints and Coatings – Architectural paints, coatings and primers applied to interior walls and ceilings do not exceed the volatile organic compound (VOC) content limits established in Green Seal Standard GS-11, Paints, First Edition, May 20, 1993.
- Controllability of Systems: Lighting – Individual lighting controls are provided for the building occupants to enable adjustments to suit individual task needs and preferences.

New Plano Campus – information provided by Dennis Vovos, of Holobird and Root, LLC

- A porous paving system is being used for the parking areas to help control water runoff and reduce the heat sink effects that would be present in an asphalt paving system.
- Bio swales are used to help control and cleanse site water runoff.
- An effort was made to use native plant material and limit the amount of lawn areas that would require watering and maintenance. No irrigation system has been provided.
- The mechanical air handling unit is provided with heat recovery, improving the efficiency of the system.
- The boilers are specified to be condensing type high efficiency boilers that should develop + 90 percent efficiency.
- The pumps specified for the project are variable speed pumps, providing increased energy efficiency.
- The lighting control system has been provided with occupancy sensors and multiple switch zones within each classroom to improve lighting control and energy usage.
- The roof membrane has been specified to be a reflective surface to reduce the effect of heat sinks and reduce the energy loss thru the roof.

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