

Governor's MnGREAT Awards

WINNER

Redwood County Environmental Office: Mobile Environmental Education Transport

The Mobile Environmental Education Transport (MEET) is a custom-built, 30-foot enclosed trailer that contains many hands-on educational tools designed to teach people of all ages about environmental issues. The displays inside educate people on recycling, composting, waste reduction, contamination of groundwater and land, household hazardous waste, alternative building products, durable goods, environmentally preferable cleaning products, burn barrels, and waste-to-energy facilities.

The main objective of this unit is to increase public awareness about environmental issues facing rural Minnesota and throughout the state. There are a number of simple, cost-effective, and environmentally sound products and practices that are readily available to help educate people. Redwood County Environmental Office staff and MEET travel to schools and public events throughout Redwood County and neighboring counties in southwest Minnesota. MEET has made a concentrated effort to create awareness and provide enough information for citizens to make sound environmental decisions.



WINNER

Minnesota Pollution Control Agency: The Eco Experience at the State Fair

In 2006, the Minnesota Pollution Control Agency worked with the Minnesota State Fair and dozens of public and private partners to create the first-of-its-kind "Eco Experience" at the Minnesota State Fair. Unique exhibits, inside and outside the building, allowed approximately 350,000 Minnesota State Fair visitors to interact with cutting-edge displays on renewable energy, "green" fuels and vehicles, recycling, water quality, green building, and other sustainable topics.

This is the first large-scale effort of its kind in the nation intended to explain how environmentally friendly practices and choices can keep our water and air clean and preserve natural resources, while supporting economic development. With nearly 1.7 million people attending in 2006, the fair offered an effective and efficient way to reach a large audience with an environmental message.



WINNER

City of Plymouth: Public Safety Building expansion

The new addition to Plymouth's Public Safety and City Hall building expanded the building's space, but kept the environmental footprint to a minimum. The building incorporated many green features:

- ▶ On-site erosion control limits
- ▶ Green roof with native plants and grasses
- ▶ Reuse of major portions of the existing building
- ▶ Minimal construction waste by recycling and reuse
- ▶ Carpet tiles
- ▶ Low volatile organic compound (VOC) materials
- ▶ Large windows provide daylight and reduce energy use
- ▶ Air in the new lobby and conference room will be blown in from grates near the floor to reduce particulates surrounding occupants and save energy
- ▶ A heat-recovery system draws energy from the exhausted air and transfers it, as heat, to the incoming air, reducing energy costs.
- ▶ New cooling units that use ozone-protecting refrigerants
- ▶ High-efficiency lighting was incorporated throughout the new building.



The program was reviewed under Xcel Energy's Energy Design Assistance Plan Review Program. The green design conserves more than a quarter of a million kilowatt hours, the energy equivalent of unplugging about 25 homes.



WINNER

Ramsey-Washington Metro Watershed District: "Green" Office Facility

Ramsey-Washington Metro Watershed District needed a new building. The watershed district led by example and built a facility that not only has a minimal ecological impact but is also a leader by incorporating several green building designs. The building has natural lighting and ventilation, recycled materials, efficient mechanical systems, and local and sustainable materials were used in construction.



One of the most innovative aspects of the site is its infiltration-based stormwater management system that uses native plants, rainwater gardens, a green roof, and a porous-asphalt parking lot. This system prevents stormwater runoff from discharging to nearby bodies of water, and uses it to irrigate the native plants on the site instead.

The new facility increases water quality in the area, conserves energy and water, and incorporates recycled products into the building all while maintaining economic efficiency.

WINNER

Heron Lake Watershed District: WATER (Watershed Assistance Through Education and Resources)

The Heron Lake Watershed District (HLWD) was formed in 1970 to help southwest Minnesota with flood control. In 1996, the HLWD's focus changed to water quality improvement and public education, and WATER (Watershed Assistance Through Education and Resources) was formed. WATER focuses on five goals:

- ▶ Increase public awareness of water quality issues
- ▶ Reduce non-point and point-source pollution
- ▶ Improve water quantity management within the watershed
- ▶ Monitor lake water quality
- ▶ Improve habitat for wildlife species

These five goals have been an integral part of HLWD's mission for ten years and have increased water quality in the area. A comparison of 1992 results to 2005 results shows that phosphorous concentrations have decreased 61 percent, and suspended solids have decreased by 17 percent from the two inlets to Heron Lake. Through water quality sampling, volunteer monitoring, and a hydrology study, water quality continues to be evaluated.

WINNER

City of Mankato: Beneficial reuse of treated wastewater

Through a cooperative effort between Calpine Corporation (an energy production company) and the city of Mankato Wastewater Treatment Facility, a phosphorus removal and filtration facility was built to supply water that meets California Title 22 Standards for Water Reuse. This project allows the city of Mankato to discharge water below 1 mg/L total phosphorus several years before it would have been required—benefiting the Minnesota River and saving millions of dollars for the city of Mankato.

Reclaimed water from the wastewater treatment plant is used by the power plant for cooling water to replace evaporative losses in energy production. Without this partnership, the reclaimed water would be discharged into the Minnesota River. However, because of the partnership between

Calpine and the city of Mankato, the water can be used up to four times in the cooling towers before being discharged. This prevents the aquifer from be-



ing used as often and will save more than 25 billion gallons of water.

Based on a four-year average of phosphorus data on the effluent from the Mankato Wastewater Treatment Plant, this partnership was able to reduce phosphorus by 52,000 pounds. Turbidity has decreased from 4-5 NTUs (nephelometric turbidity units) to currently 1 NTU. These changes have resulted in better water quality and better aquatic habitat in the Minnesota River.

WINNER

Shakopee Mdewakanton Sioux Community: Wastewater Reclamation Facility

The Shakopee Mdewakanton Sioux Community (SMSC) recently completed construction of the most advanced wastewater reclamation facility in Minnesota. The SMSC approached the project with three major goals in mind: Treat the effluent and biosolids from the facility to the highest degree, minimize the volume of discharge from the facility, and reduce the impact of the facility on the environment.

Features of the plant include an ultra-filtration process that is unique to wastewater treatment processes in this region, a biosolids drying process, a comprehensive water use and reuse plan that uses the reclamation water for golf course irrigation and minimizes downstream impacts, and an innovative facility design that includes the largest "green" roof in the upper Midwest—31,000 square feet. As a result, each year the facility will:

- ▶ Save approximately 85 million gallons of water.
- ▶ Reduce biosolids by 1.1 million pounds.
- ▶ Save \$200,000.
- ▶ Reduce water pollutants by 25,000 pounds.
- ▶ Reduce water runoff by 60,000 cubic feet.

The building's heat loss in the winter and heat gain in the summer will be reduced by the green roof and noise pollution will be minimized by approximately 40 decibels. This facility truly serves as a model for others.



WINNER

Western Lake Superior Sanitary District: Food Waste Recovery Drop Site Program

Western Lake Superior Sanitary District (WLSSD) started a food waste drop-site program in May 2004 as part of a continuing effort to recover and divert organic material from the district's solid waste stream.

WLSSD wanted to gauge the efficacy of using strategically located drop sites to collect source-separated food waste generated by residents, small businesses, and one-time special events.

Providing localized drop-sites allows residents and small businesses to accumulate food waste until an adequate quantity warrants a trip to the drop site.

Establishing drop sites close to those most likely to use them addresses the inefficiency of curb-side collection from widely-dispersed customers and reduces the amount of energy expended in transporting organics to the landfill (previously



a 90 mile trip!). Drop-sites had never been used to collect composting in the United States before.

To help participants WLSSD created Waste-Free Party Kits to facilitate food waste recovery. Kits consist of compostable bags to line the bins, portable collection bins, information on sources of compostable utensils, prepared signage, and instructions on source separation and use of drop sites. WLSSD has seen an increase in the demand for the kits, which indicates a growing awareness from the district about diversion of organics to a higher use.

WLSSD has proven that drop sites can work and the volume of organic waste being recycled in the community is proof. Participants have seen reductions in their garbage anywhere from 30 to 50 percent. The four drop sites are expected to collect 25 tons of food waste in 2006. This could lead to even more sites in the future.

WINNER

Minnesota Department of Transportation Office of Environmental Services: Biomound Process: Reusing petroleum contaminated soil

The MnDOT's Office of Environmental Services developed a bioremediation technique to treat excavated petroleum-contaminated soil. Petroleum-contaminated soil is mixed with manure and wood chips to provide bacteria with a healthy environment to breakdown petroleum.

This research technique, commonly known as biomounding, makes it possible to reuse petroleum-contaminated soil rather than send it to a landfill or use other more expensive treatment alternatives. This process is cost effective and reduces petroleum concentrations. The result is a by-product that does not harm the environment; the treated soil can be used as a soil amendment in road projects. Approximately 30,000 cubic yards of contaminated soil have been kept out of the landfill from this program.



WINNER

Carlton County Transportation

Department: 2006 building demolition

Carlton County's Highway Department demolished a large 1940s era concrete building. Out of a potential 480 tons, the county sent only 1.5 tons of material to the landfill.

To achieve this, each component of the building was examined and removed carefully with the intent to reuse or recycle as much as possible. Doors, windows, lumber, and heating components were removed for reuse. The steel roof, re-rod, and trusses were removed and over 30 tons of steel was sold for recycling. Concrete was hauled to a gravel operation to be crushed and used in class 5 gravel road mixture. The most amazing accomplishment was that the extra time spent sorting material was offset by the dollar amount received for recycled steel and concrete.



WINNER

Metropolitan Council Environmental

Services: Solids Management Building

A new, state-of-the-art Solids Management Building located at the Metropolitan Wastewater Treatment Plant on the Mississippi River in St. Paul has dramatically reduced air emissions and energy use while reducing costs. Met Council identified the need to replace an aging and outdated system. The goals and objectives for the new plant were to increase the amount of heat recovered from the process, decrease the reliance on non-renewable energy, reduce air pollution, and reduce the odor at the plant.

The Solids Management Building includes three new fluidized-bed incinerators, a more efficient and effective energy recovery and pollution control system, and improved solids-dewatering equipment. Each of the new incinerators burns solids in a single chamber at 1400 degrees Fahrenheit, which allows the incinerator to keep burning on the heat value contained in the solids without the addition of any external energy source. This reduces the plant's need for natural gas, which saves \$3.4 million annually. The new system also recovers heat from the combustion process. This system powers a turbine generator that can produce up to 5 megawatts of electricity through renewable energy, thus preventing 30 million pounds of carbon dioxide.

In its first full year of operation the project reduced air emissions of many pollutants by 95 percent, reduced natural gas usage by 80 percent, and saved \$600,000 annually in avoided electricity costs and greenhouse gases. Odor was also significantly reduced.



WINNER

Elk River Energy City: Landfill Gas to Electric Power Plant

A landfill gas electric generating plant was installed through a cooperative agreement between the Elk River Landfill, Elk River Municipal Utilities, and Sherburne County at the Elk River Landfill to collect, filter, and burn methane gas from decomposing waste for energy production. Methane is produced as a by-product of the waste decomposition process in landfills. Normally the methane produced is burned off in an open flare to reduce the potential for explosions, but the owner of the landfill and the county identified the gas as a potential renewable energy source. The plant generates approximately \$2.2 million worth of electricity from an otherwise unexploited source. This energy is sold to Great River Energy and produces over 20 million kilowatt hours of energy annually. The plant has reduced the need for more or larger power plants. The amount of methane produced at the Elk River Landfill is estimated to last 35 years.

The facility includes an Environmental Learning Center to teach school, environmental, and public groups about the electricity generation from the landfill gas, along with other environmental issues. This unique partnership among the city, county, local utilities, and the private landfill has been instrumental in developing the center and has helped Elk River reduce its reliance on fossil fuels.



WINNER

Elk River Energy City: Energy House III

The Energy House III is a collaboration between Suburban Northwest Builders Association, Northwoods Custom Homes and Remodeling, seven project partners, and 31 project suppliers. Energy House III was built to provide builders and homeowners with a template of energy efficient and renewable energy technologies that could be replicated anywhere (new construction or retrofitted homes). Energy House III opened in mid-April of 2006 and will be used for demonstration purposes and tours until March 2008.

Energy House III used the most technologically advanced methods of building to eliminate unnecessary electrical use: insulated panels, Styrofoam T-Mass Poured-in-Place insulation system, a geothermal pump, and special 0.18 U-factor windows. Recycled products were used whenever possible along with low-VOC materials. The technologies used in the house are saving energy and costs, while reducing pollution. With all of the energy upgrades put into the house, over \$1,250 per year will be saved in energy costs. Annual air emissions will be reduced by nearly 37,000 pounds of carbon dioxide and 100 pounds of both sulfur dioxide and nitrogen oxide. As an added bonus, the house is also educating the public on things citizens can do to their own home.

