

Sustainability 2014



mmcd
METROPOLITAN MOSQUITO CONTROL DISTRICT

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Sustainability

For the Metropolitan Mosquito Control District, sustainability means meeting the needs of the present without compromising the ability of future generations to meet their needs.

Our Mission

To promote health and well being by protecting the public from disease and annoyance caused by mosquitoes, black flies, and ticks in an environmentally sensitive manner.

Our Vision

To be the leading abatement district in the world.

Our Values

We value integrity, trust, cooperation, respect, and competence in our interactions with colleagues and customers.

A Message from our Executive Director

Dear Friends,

Sustainability is an important part of who we are at the Metropolitan Mosquito Control District (MMCD). Since 1958, we have been an organization with a strong commitment to the environment and the citizens we serve. This is reflected by our Mission Statement.

The Metropolitan Mosquito Control District's mission is to promote health and well-being by protecting the public from disease and annoyance caused by mosquitoes, black flies and ticks in an environmentally sensitive manner.

Ongoing impacts from decreasing natural resources and climate change have served to deepen our commitment to sustainability and social responsibility. I believe public sector organizations have an obligation to conserve limited resources, and MMCD is constantly looking for ways to become more sustainable and improve environmental performance.

In 2013, MMCD focused efforts towards establishing a sound sustainability strategy, and formed a steering committee to assist in guiding staff's efforts. We identified key opportunity areas and small groups worked to establish specific sustainability goals in each of these areas. In 2014 we built upon progress achieved in 2013.

I am very proud of our staff's efforts and the progress we have made. We will continue on our sustainability journey because it strengthens our organization, makes us better equipped to deal with change and puts us in a better position for long-term success.

Thank you for your interest in MMCD and our sustainability efforts.

Stephen A. Manweiler
Executive Director

Executive Summary

MMCD assembled a Sustainability Steering group to set up a framework for incorporating sustainability principles into the organization. This group's overarching theme is to document current sustainability efforts and to examine the economic, environmental, and social impacts of sustainability on the District going forward.

This group focuses on four opportunity areas: 1) reducing energy usage; 2) reducing waste; 3) identifying and using renewable resources; and 4) social responsibility and wellness.

Opportunity Area Goals:

Reduce Energy Usage

We currently are reviewing our vehicle fleet with the goal of minimizing fuel usage while maximizing the amount of work completed for each mile driven. To achieve this long-term goal we are exploring how we can use better training for vehicle operators including better real time feedback for drivers and better matching of vehicles to types of work.

We also are exploring strategies to save electricity by employing energy efficient lights, motion sensitive switches to turn off lights, and scripts to automatically shut down computers outside of work hours.

Reduce Waste

We are working to reduce our waste stream, both through more effective recycling and by adopting reusable control material containers.

Renewable Energy

We are exploring renewable energy such as solar and wind generation to determine when and if such sources can provide cost effective replacements for current fossil fuel derived energy.

Social Responsibility and Wellness

We are focusing on volunteering efforts inside and outside of work.

Reducing Energy Usage

The Reducing Energy Usage group focused on reducing MMCD’s overall energy consumption. The group began by reviewing MMCD electricity and fuel consumption and considering ways to reduce energy usage. Two projects started 2013, both involved specific ways to reduce electricity consumption in day-to-day operations. The goal was to reduce MMCD electricity usage by 10% overall. The ultimate plan is to learn how to relate this to carbon footprint values. Both projects were continued in 2014.

Reduce Electricity

Project 1- Lighting as needed

Baseline Information: Past electricity usage records were gathered and the number and type of light switches at each facility were tallied to determine how many were manual, automatic, or had 24-hour security features.

Strategy: Retrofit companies evaluated lighting and automatic light switch options for each facility. All facility retrofits were finished by the end of 2013.

Project Status: Monthly electricity usage records were tabulated through 2014 (post retrofit) and compared to average monthly usage records for 2010-13 (baseline information):

Monthly electricity costs (January – October 2014) at the Plymouth facility compared to average monthly costs (2010-13) recorded before the retrofit was completed. The ten month electricity cost in 2014 (after retrofit) was \$5,988.48 compared to a similar ten-month cost of \$7,451.98 (before retrofit, average of 2010-13), a \$1,465.50 savings (Figure 1).

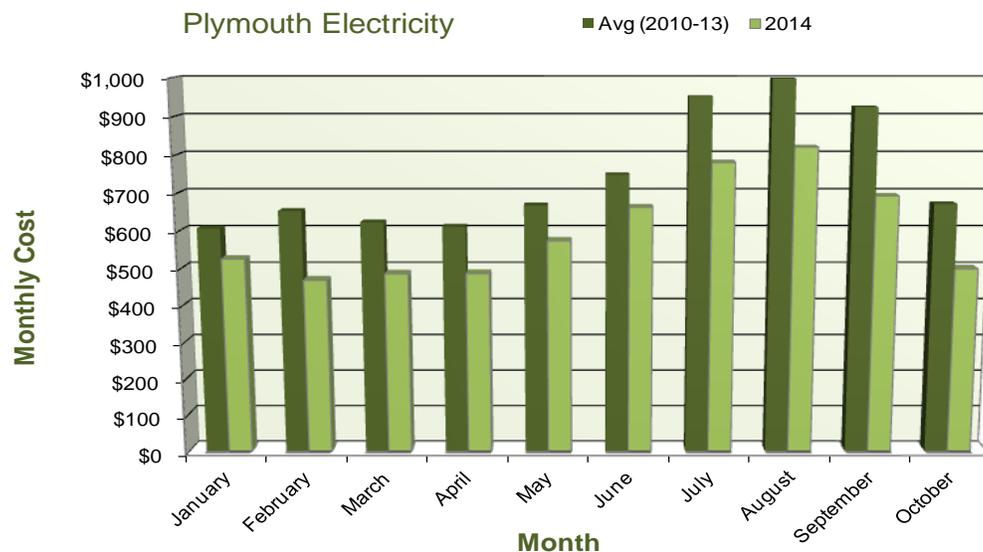


Figure 1 Monthly cost of electricity at Plymouth Facility, 2014 vs. 2010-13.

Monthly electricity costs (January – October 2014) at the Oakdale facility compared to average monthly costs (2010-13) recorded before the retrofit was completed. The ten month electricity cost in 2014 (after retrofit) was \$6,101.60 compared to a similar ten-month cost of \$7,431.88 (before retrofit, average of 2010-13), a \$1,330.28 savings (Figure 2).

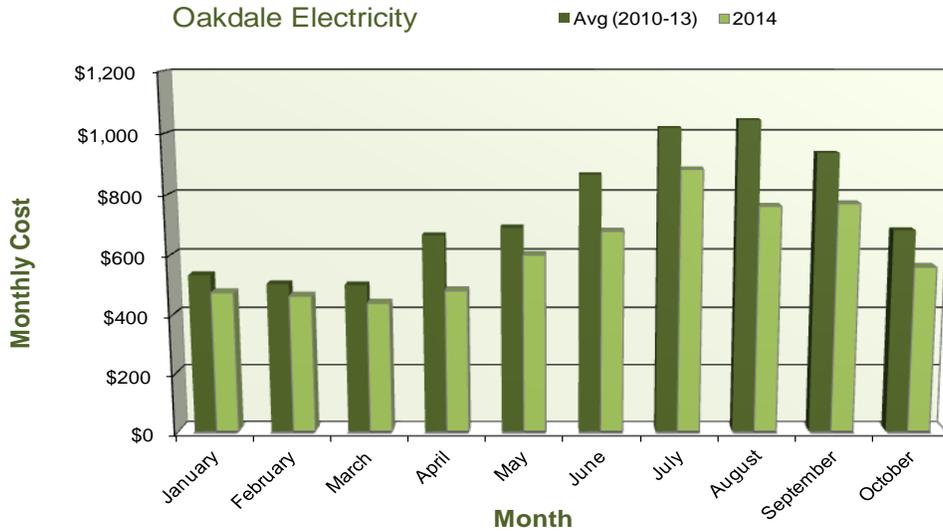


Figure 2 Monthly cost of electricity at Oakdale Facility, 2014 vs. 2010-13.

We plan to further explore this information for all facilities to calculate a District total savings value.

Work Remaining: Add remaining 2014 and 2015 monthly electricity usage data to further quantify savings.

Project 2- Computers on as needed

Baseline Information: Past electricity usage records were reviewed and the number and type of computer at each facility were tallied. Network records of amount of time computers were on and using electricity were assessed.

Strategy: The plan is to evaluate the computer situation at each facility factoring in the number of computers, their age, operating system, network, and potential for OS upgrade. Then write and install an automatic shutdown scripts (Windows 7 and XP) at each facility after network and operating system upgrades are completed.



Project Status: Beginning in April 2013, a special effort was made to remind staff to turn computers off overnight and when not in use. As of July 2013, all network upgrades were completed at all facilities. As of September 2014 network upgrades were completed. Operating systems upgrades were not completed by the end of 2014.

Work Remaining: Complete operating system upgrades at each facility in 2015. Reexamine the feasibility of automatic shutdown scripts for all computers that do not need to stay on to support

data updates, transfers, or essential network or IT functions. We will assemble baseline IT energy usage data for each facility and monitor post-retrofit energy usage to document the impact of the changes.

Relevant questions to answer would be whether we could detect a decrease in the time computers were on when not in use. Additionally, can we detect a decrease in electricity usage related to computer upgrades, including a decrease in the number of monitors associated with networks?

Fuel Efficiency Work Group



During 2013 and 2014, the District established a work group to help find ways to do the same amount of work while driving fewer miles and using less fuel. That group has been using problem solving techniques to answer some fundamental questions about how we use fuel in day-to-day operations. This work group's stated goal is "As an Organization, Be More Fuel Efficient." The workgroup's continuing objectives are to 1) measure amount of fuel used to complete mandatory tasks; 2) have fuel efficient drivers; 3) use the most fuel efficient vehicles to do work; 4) assign workload using fuel efficient strategies; and 5) promote a fuel efficient culture.

Ongoing Projects

- Review vehicle features needed to complete operations
- Measure vehicle specific and overall fuel usage
- Review amount of overall work comprised by each task

Long-term Tasks

Review work assignments

- Use highest mileage vehicle available
- Minimize driving distance
- Minimize number of vehicles required

Review staff training

- Provide regular feedback about fuel efficiency and driving behavior
- Provide real time mileage information

Review new vehicle technology

- Replace old vehicles with higher MPG models
- Move away from the "big truck" paradigm – incorporate new vehicle technology (e.g., hybrids) into fleet

Ford C-Max hybrid vehicles purchased

In 2014, the District purchased two Ford C-Max hybrid vehicles. On June 20 the Andover facility received its C-Max while the Jordan facility received theirs on July 16. Although both were received late in the operational season, Andover drove 6,560 miles and Jordan 4,755 miles.



We conducted a preliminary comparison of MPG with other District vehicles and documented which activities were completed using these two vehicles.

MPG Comparison (through October)

	Ford C-Max	Ford Windstar Van	Chevy Colorado Truck	Ford F-150 Truck	Chevy Silverado Truck
MPG	40-44	18-21	19-21	13-15	13-15

Activities Completed Using C-Max

Activity	No. of Times	Comments
Trips to St. Paul	35	meetings, dropping off and picking up
Surveillance	17	CO ₂ traps, sweeps, aspirator, rain gauges, NJ traps
Tick surveillance	19	
Miscellaneous	14	errands, county fairs, distribute brochures, etc.
Control	7	catch basin treatments
Meeting staff in field	6	
Inspecting wetlands	2	Pre and post treatment checks
Customer response	1	
Bioassays	1	

Staff Feedback about C-Max

Overall feedback was positive. The C-Max was best used for activities where staff didn't have to access wetlands. It took a while for drivers to get used to the instrument panel and controls, but feedback from readouts was useful to correct driving behavior.

Plans for 2015

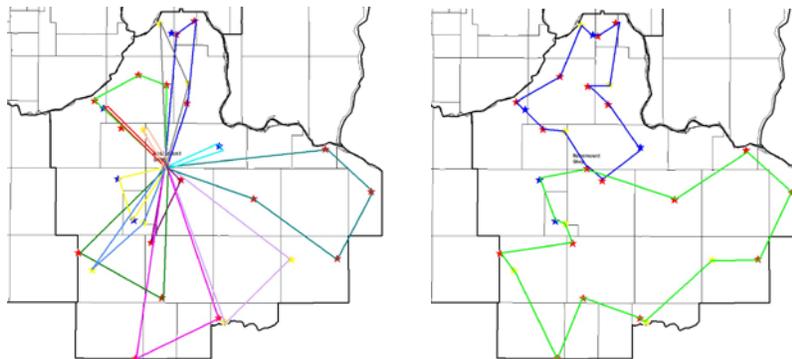
In early January 2015, we will revisit the vehicle part of the 2015 budget to determine if some of those funds should be used to purchase more C-Max or other hybrid vehicles, if available. We also need to determine how data collection can be streamlined to permit more detailed comparisons of vehicle types.

Other Reducing Energy Usage Strategies by Facility

Rosemount Facility

Combining driving routes for routine surveillance

The Rosemount facility has 18 CO₂ traps, 5 gravid traps and 8 black fly sweep locations located in four different Field Operations Supervisors' geographical areas. In the past, each crew was in charge of their own CO₂ traps, gravid traps and black fly sweeps but this was an inefficient use of staff time, vehicles and fuel. In 2014, the routes for these routine surveillance tasks were combined to be more efficient.



Results of 2014 changes:

- 35% decrease in miles driven
- 52% decrease in staff time
- 71% decrease in staff needed to complete tasks
- Each route has detailed directions, ensuring that vehicles are following the most efficient path and all staff members can do the route.

General Electric Motorcars (GEM) electric car purchased

The Rosemount facility used the GEM primarily for catch basins treatments. Only averaging 3-4 hours of use per charge, the electric car was transported to treatment areas using a trailer.



Oakdale Facility

Oakdale facility developed a weekly CO₂/gravid trap route that used 2 field staff and 2 vehicles instead of the 7 field staff and 7 vehicles previously used. They will fine-tune the process for 2015 and compile the man hours/miles driven data for review.

Plymouth Facility

Plymouth facility is scheduled to get new windows in December 2014. This should greatly reduce energy use since a lot of their current windows don't seal properly and aren't well insulated.

St. Paul Facility

The Entomology Lab replaced eighteen existing fiber optic microscope light sources with more energy efficient and economical LED ring lights. The fiber optic bulbs have a 40-hour life and cost \$25 and the LED ring light bulbs have a 20-year life and costs \$165. This retrofit qualified MMCD for a \$1,500 rebate from Xcel Energy.

Catch basins in the city of St. Paul were treated using bicycles. This strategy results in a reduction of truck miles driven by approximately 1,400 per month.

Reducing Waste



The Reducing Waste group's mission is to reduce the waste stream in all processes and to share the techniques, processes, and experience of all facilities as they find ways to reduce waste.

A waste stream is defined as a material that is not recycled, re-used, or composted. If material is brought to a landfill or incinerated, we defined it as part of the waste stream.

In 2014, each facility was given the charge to reduce waste in the form of garbage and to increase the amount of recycling. All facilities made an effort to improve their recycling numbers and to reduce the amount of garbage that was picked up for either landfill or incinerator deposits.

All facilities made improvements, although with the large amount of helicopter treatments that were done in 2014, we generated more garbage in the form of non-recyclable control material bags. MMCD can produce over 40,000 empty bags in an average year. The control material bags containing our most used insecticide, *Bacillus thuringiensis* var. *israelensis* (*Bti*), remain the District's number one source of waste.

Maple Grove Facility-Eliminate *Bti* bag waste from hand-treated sites

In 2014, the Maple Grove facility had the goal of eliminating the *Bti* bag waste produced from hand-treating wetlands. After a slow start and a few minor setbacks, the team was finally able to test the new process in July with very good results. The Maple Grove staff purchased a small silo to safely manage this bulk control material and dispense it into reusable 30 lb seed bags. Despite the late start to the process, Maple Grove successfully utilized this new system and reduced their waste by 40 bags in 2014. Although far fewer bags are produced as waste during hand-treatments versus during our helicopter operations, this goal served to test the bulk filling process.

The process used is outlined as follows:

1. Receive two 1600 lb "super sacks" of *Bti* from the manufacturer
2. Load the "filling silo" with control material
3. Fill re-usable seed bags with 30 lbs of *Bti*
4. Tie and stack the entire 1600 lbs on a pallet for use in normal operations



Recycling Pesticide Containers The District continued to use the Minnesota Department of Agriculture's (MDA) pesticide container recycling program. Several control materials used by MMCD are purchased in plastic 2.5 gallon containers. MMCD staff collected and sent 6,148 jugs to this recycling program.

Recycling Pesticide Pallets In 2014, MMCD produced over 1,235 empty hardwood pallets used in control material transportation. We worked with our vendors to uniquely mark their company's pallets and arrange for their return to the manufacturer for re-use. In doing so, MMCD reduces the need for the production of new pallets and helps to maintain lower control material costs for the District.

Plans for 2015

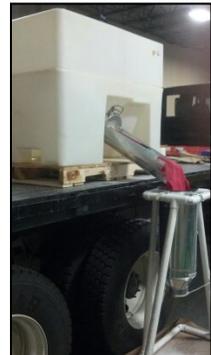
The goal for 2015 is to improve the process by having a mobile scale and to use the process from the beginning of the control operations season. Staff is reviewing how to implement their findings into our other field facilities and to expand their ideas to other control materials.

Other Reducing Waste Strategies by Facility

Oakdale Facility

Over the last 6 months the Oakdale facility saved \$408.00 on their drinking water bill by changing from delivered water bottles to renting 2 water filtration systems. The new systems are more sanitary and eliminate the need to store, lug around, and recycle the 5 gallon jugs.

Oakdale facility also worked with Clarke Mosquito Control to help develop a Natular™ G30 delivery apparatus that could be used with a "bulk-tote" system for helicopter operations. If incorporated, this could eliminate any empty bag disposal issues. In 2015, staff will use this equipment operationally for one of our pre-hatch larval control materials, saving 1,280 bags from entering the waste stream.



St. Paul Facility

The St. Paul facility updated recycling signs and containers and started composing organics in the lunch room. They also replaced the 5-gallon jug water cooler deliveries with three permanent water filling stations.

Jordan Facility

The Jordan facility collected and stored all their paper and cardboard throughout the entire year and delivered it in September to St. Wenceslaus Catholic School in New Prague for their annual paper drive. Jordan recycled 100% of their recyclable paper products (about 2,700 lb in 2014) with no disposal cost to the District.



Andover Facility

The Andover facility held its “1st Annual Recycling Competition” from August 18 – 22. The winning crew collected 21.8 lb of recyclables. The 2nd place crew collected 18.1 lbs and the 5-crew total was 60.7 lb. The winning crew celebrated their win with root beer floats!



Renewable Energy

The “Renewable Energy” group continued to expand our knowledge on regional renewable energy projects. In 2014, the team focused on solar energy and reviewed several projects in the metro area.

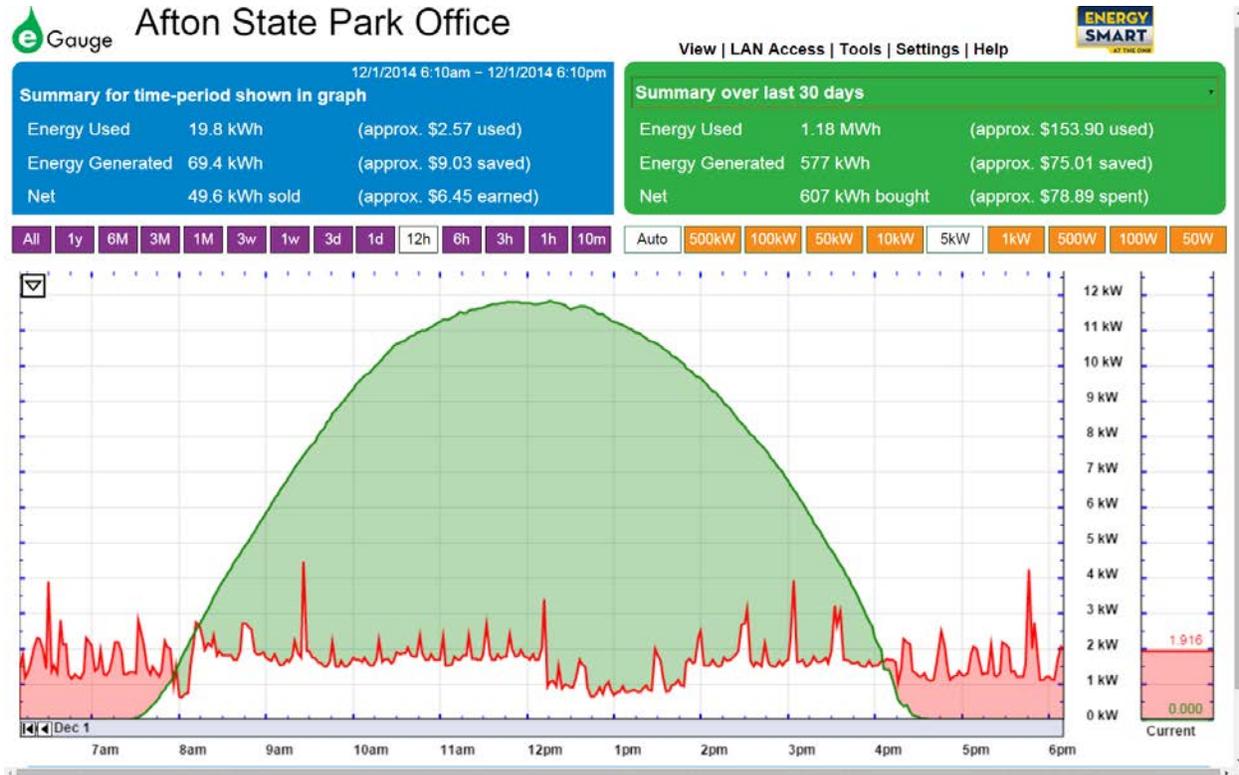


The group searched for a mentor to help us understand the details of implementing a District solar program. We contacted the lead person for the Minnesota Department of Natural Resources solar energy program, Rob Bergh, who led that organization’s solar program and developed many projects throughout the Minnesota State Park system. After we started discussions, Rob left the DNR and started his own consulting service to help organizations explore renewable energy systems to their operations.

Rob met with our group and brought us to a local solar array located at the Afton State Park. On the tour, he fully explained how the various systems worked, how the systems were integrated, and outlined how the energy generated is monitored.



Each system can be linked with an E-Gauge system that can display the current energy output of the solar array and comparisons to your overall facility energy use. Any aspect of the system you would like to highlight can be displayed on your webpage to aid in energy management.



After the tour, we continued our meeting at the Rosemount facility. We evaluated the suitability of the Rosemount property for installation of a solar array. This led to discussion of what the District wanted in a renewable energy program. The District will need to determine if we want to have our renewable energy to be a visible part of our operations (promoting the public relations aspects) or if we want it to be less visible, more secure and focused on the energy production (promoting the generation of renewable power). This decision will determine which facilities would be best for our initial projects and directly affect the placement of the array at that facility.

Rob outlined how you can calculate the various costs of constructing a solar array at one of our facilities. He outlined the various programs that could assist with financing a capital program, budgeting assistance and how the systems could be viewed as an investment with a good rate of return for the organization.



Plans for 2015

The Renewable Energy group will work with MMCD management to develop a proposal for a solar energy array and determine the best location for District operations. We will develop a proposal for a 2016 solar array installation.

The group will continue to research opportunities to utilize renewable energy sources. We plan to continue learning from other organization's experiences to develop our own quality energy program. We intend to explore working with other government entities on projects. Facilities with close proximity to other governmental agencies (e.g. Rosemount and Andover facilities) might be able to share expenses and both take advantage of renewable energy opportunities. Our team will review data to focus initially on projects with the greatest return on investment.

Social Responsibility and Wellness

At MMCD, we define social responsibility as how we give back to and take care of our community. Our community includes the citizens of our seven-county metro service area, but also state, national, and international perspectives.

2014 Events

- March 26 – Employee Blood Drive: 17 employees volunteered to donate blood for the Memorial Blood Center. Eight donors were accepted for our first ever blood drive.
- April 26 – Shoe Drive: The District collected 154 pairs of shoes for an organization called Green Sneakers, a non-profit organization that collects new and used shoes for developing nations.
- Summer 2014 – Food Drive: For the second year employees donated nonperishable food items to the Neighborhood House in St. Paul totaling 134.7 lb of food.
- August – The subgroup started a monthly internal newsletter about sustainability titled “Sustainability Bytes” containing such topics as: reusing, reducing, recycling, volunteering opportunities, hazardous waste disposal, air quality, and what is happening in the world of sustainability.
- December – Coat Drive: 12 winter coats, numerous scarves, hats, mittens, along with a variety of other needed items were donated by employees to Joseph’s Coats in St. Paul. A free store providing clothing, household items, personal hygiene products, and children’s items, that serves over one thousand individuals each week since 1989.



Plans for 2015

We plan to continue with the programs from 2014, while also looking for new opportunities to assist our communities and employees.

Members of the Sustainability Groups

Reducing Energy Usage

Aubrey Soukup, Brian Feldhake, John Walz,
Jon Peterson, Stephen Manweiler, Matt Giesen

Reducing Waste

John Walz, Jim Stone, Brian Feldhake, Matt Giesen, Mark Smith, Loren Lemke

Renewable Energy

Mark Smith, Eva Knudsen, Kirk Johnson, Stephen Manweiler, Jon Peterson, Molly Nee

Social Responsibility and Wellness

Loren Lemke, Mike McLean, Eva Knudsen, Jim Stone, Carey LaMere,
Aubrey Soukup, Kirk Johnson, Kathy Anderson, Molly Nee

IPPAT Participation

MMCD is also a member of the Minnesota's Interagency Pollution Prevention Advisory Team (IPPAT). IPPAT was created by governor's executive order as a way to reduce hazardous waste generation. Now housed in the MN PCA, it has grown to include efforts to reduce waste, prevent pollution, improve efficiency, reduce energy use in public buildings, and to provide a forum for sharing sustainability practices.