



Sustainability 2015

Contents

Our Mission, Vision, and Values	2
A Message from our Executive Director	3
Executive Summary	4
Opportunity Areas	
Reducing Energy Usage	5
Reducing Waste	11
Renewable Energy	13
Social Responsibility & Wellness	15



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.

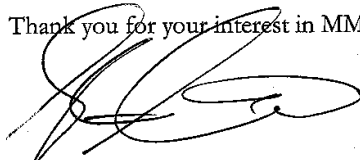
The Metropolitan Mosquito Control District's mission is to promote health and well-being by protecting the public from disease and annoyance caused by mosquitoes, black flies and ticks in an environmentally sensitive manner.

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 2015 we built upon progress achieved in 2013 and 2014.

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 matching of vehicles to types of work.

We also are exploring strategies to save electricity by installing more efficient windows, encouraging teleconferencing for meetings, 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 bulk 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. In 2013 the group focused upon reducing electricity usage and continued these efforts in 2014. In 2014 the group started a review of hybrid vehicles as a way to reduce fuel consumption. These evaluations continued in 2015. In 2015 the group also developed a tool to estimate how much fuel could be saved by participating in meetings via teleconference.

Reduce Electricity

Project 1- Evaluate energy use impact of new windows at Plymouth

Baseline Information: Past energy 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. New energy efficient (better insulated) windows were installed at the end of 2014.

Project Status: Monthly energy usage records were tabulated through 2015 (post retrofit followed by window installation) and compared to average monthly usage records for 2010-13 (baseline information):

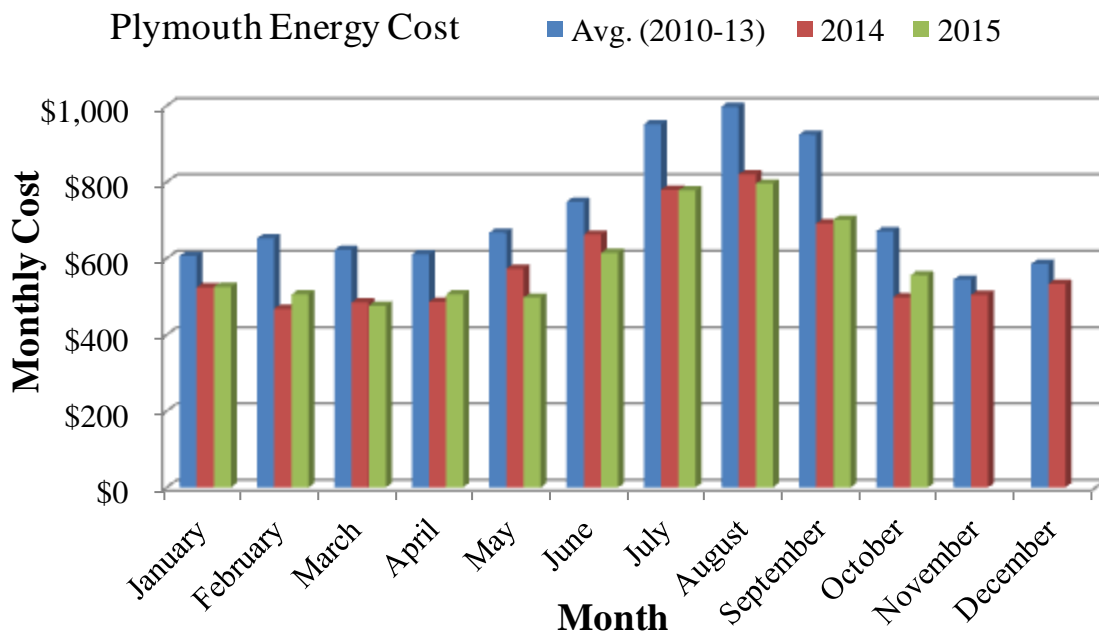


Figure 1 Monthly energy cost at Plymouth Facility, 2015 vs.2014 and 2010-13.

Monthly energy costs (January – October 2014) at the Plymouth facility compared to average monthly costs (2010-13) recorded before the retrofit was completed. The ten-month energy 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). The ten-month cost in 2015 (after new windows installed) was \$5,955.73 which is very similar to the 2014 (post retrofit) value. We plan to collect additional years of information to try to better determine potential energy savings due to the new windows.

Work Remaining: Add remaining 2015 and 2016 monthly energy usage data to further quantify savings.

Project 2- Quantify mileage saved by teleconferencing

Baseline Information: Assume no mileage (or fuel) savings if everyone drives to meetings.

Strategy: Two employees (Eva Knudsen and Carol Mertesdorf) proposed developing a spreadsheet tool to document all meeting members who participated remotely (via teleconference). Demonstrating how much fuel can be saved seemed an effective way to convince more employees to participate via teleconference.



Project Status: Beginning with the April 23, 2015 Sustainability meeting, employees from each facility who participated via teleconference were documented using the spreadsheet. It includes a round trip between each facility and the Main Office in St. Paul, the mpg for the vehicle that would have been driven, the average fuel price on that date and the number of employees participating via teleconference from that facility (Fig. 2, 3).

Meeting Teleconferenced	Date	Start Time	End Time	Anoka Miles	Ave. Mileage of Vehicle	# employees teleconferencing
Sustainability	04/23/15	7:30	8:30	45	40	2
Sustainability	06/25/15	7:30	9:00	45	40	2
Sustainability	08/06/15	7:30	8:30	45	40	0
Sustainability	10/06/15	7:30	9:00	45	40	0
Sustainability	10/27/15	7:30	8:30	45	40	0

Figure 2 Spreadsheet entries documenting the number of Andover (Anoka) facility based employees who participated in five Sustainability meetings via teleconference including round trip mileage and mpg of vehicle (C-Max) that would have been driven to St. Paul.

Total Miles Saved	Average miles/gal.	Average Fuel Amount Saved (gal)	Daily Fuel Price	Dollars Saved	# staff teleconferencing	Staff Hours Saved
277.4	23.9	11.59	\$2.39	\$27.70	9	8.65
233.4	25.5	9.15	\$2.79	\$25.52	9	8.36
0.0	0.0	0.00	\$2.69	\$0.00	0	0.00
199.0	23.1	8.61	\$2.49	\$21.44	6	6.09
33.4	18.0	1.86	\$2.29	\$4.25	1	0.74
743.2	23.8	31.2	\$2.53	\$78.92	25	23.84

Figure 3 Estimated fuel savings accrued by all District employees participating in five Sustainability meetings via teleconference.

Participating via teleconference saved about 743 miles of driving which equates to about 31 gallons of fuel with a value of almost \$79 (Fig. 3). This pilot test strongly suggests that the spreadsheet should be used to encourage and document participation via teleconference in 2016 and beyond.

Work Remaining: We should use the spreadsheet for all meetings in St. Paul. We also should create versions that apply to meetings held at other District facilities. We need to inform employees that participation via teleconference can increase participation in and effectiveness of meetings.

Project 3- Fuel Efficiency Work Group



During 2013, 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. In 2015 we continued to integrate and evaluate more fuel efficient vehicles into MMCD’s fleet. We continued with overall projects initiated in 2013.

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

In 2014, the District purchased two Ford C-Max hybrid vehicles. Although both were received late in the operational season, Andover drove 6,560 miles and Jordan 4,755 miles. In 2015, the District purchased four additional Ford C-Max hybrid vehicles and stationed one at each of the six field facilities.



We continued comparisons of MPG with other District vehicles and documented which activities were completed using these two vehicles begun in 2014. In 2015 the C-Max vehicles were driven an average of 5,500 miles in a 6 month period and again averaged 40+ MPG (Fig 4). They also were used for a variety of tasks (Fig 5).

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

Figure 4 Average miles per gallon of various District vehicles (through October 2015).

Activity	# of Times	
Commuting	102	Meetings, dropping off and picking up, errands, tick brochures, etc.
Surveillance	78	CO2, Sweeps, Sucos, Gauges, NJ traps
Catch Basins	29	
Inspecting Air Sites	23	Pre and post checks
Tick Route	22	
Meeting staff in Field	18	Checking on staff, lunch, delivering items
Mapping	19	
Customer Calls	10	
Insp. Ground Sites	4	

Figure 5 Use of C-Max vehicles for different tasks (through October 2015).

Staff Feedback about C-Max

Overall feedback continued to be positive in 2015. The C-Max was best used for activities where staff didn't need to carry control materials for treatments. We will continue to look at ways to carry material outside the vehicle so we can use this type of vehicle to make treatments.

GMC Canyon Trucks

In 2015, we added 8 GMC Canyons to the 24 compact trucks the District already has giving us a total of 32 compact trucks in the fleet. On average the Colorados and Canyons are getting around 20 MPG compared to the 14 MPG for the regular fuel half ton trucks (Fig 4).

Overall Results

Having the 32 compact trucks and six C-Max's in the fleet versus half ton trucks we purchased approximately 4,800 fewer gallons of fuel and saved around \$11,000 in 2015.

Plans for 2016

In 2016, we plan on adding 14 more compact trucks to the fleet. These trucks should reduce our fuel usage by another 1,400 gallons and save \$3,200 (compared to larger trucks purchased in the past). We decided to add no more C-Max in 2016 to give staff time to devise ways to carry control materials in these vehicles.

Next we'll be looking at what the fleet should look like in 2017. Do we increase the number of compact trucks, hybrid cars? Will hybrid trucks or other potentially attractive technologies be available?

Other Potential Reducing Energy Projects

Energy savings by automatically shutting down computers

IT is preparing “images” (roughly, set system and software configurations) for desktop and other computers in 2015 4Q and 2016 1Q. The “images” can include different degrees of automatic shutdown (e.g., monitors only, computer goes to “sleep” after a set period of inactivity, etc.). The current plan is to have the monitors sleep after 30 minutes of inactivity.

In 2016 we will consider a pilot study to compare the power savings achieved by various automatic shutdown methods, perhaps using a kilowatt meter. These results could help us decide which automatic shutdown strategy would save the most energy with the least inconvenience to users and IT.

Learn more about solar tubes

We reviewed information about solar tubes from Solatube (<http://www.solatube.com/>). Solatube Daylighting Systems, mistakenly called "solar tubes", also are modular and easy to connect to ceiling systems. And unlike traditional skylights, they are designed to control the problematic aspects of sunlight. They reduce glare and inconsistent light patterns. They also screen infrared rays that can overheat interiors as well as ultraviolet rays that can fade furniture and fabrics.

We decided that we need to learn more about these kinds of systems. For example, the roof of the St. Paul headquarters potentially will need to be replaced in 5-7 years. Reviewing lighting and other environmental systems in preparation for the roof replacement could enable MMCD to engineer a more energy efficient replacement.

Investigate insulation status at Jordan

We decided that a review of the heating situation at Jordan is required to determine which remediation steps (e.g., insulation, other steps) would resolve the situation most effectively within MMCD’s budget. What we learn may be applicable to other facilities and should be considered for inclusion in MMCD’s long term plan.

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 2015, each facility was given the task to improve upon their own efforts in reducing waste. These efforts lead to an overall improvement of recycling and other processes to find new and improved ways of reducing our waste.

Composting

2015 saw more facilities embrace composting as a viable means of reducing organic material from our waste stream. The Andover, Maple Grove, Plymouth, and St. Paul facilities either continued or started composting organic waste in their offices. The Andover facility built a composting bin out of recycled pallets for their waste while the other facility bought "tumbler" bins.



All facilities reported great success with this project for the first year. Each facility produced enough compost soil to augment some plants or to start a small garden. The next step in this process is to include paper towels in the composting process and get a good reduction in the number of paper towels we throw into the garbage.

Recycling

Shrink Wrap Recycling Control materials purchased by MMCD are often delivered on pallets with the contents shrink wrapped. Spearheaded by the Andover facility, shrink wrapping now has a vendor that is willing to recycle it. This has resulted in 490 lbs of material recycled by the Andover alone. All other facilities were encouraged to either bring shrink wrap to Andover or find a recycler in their area. The Rosemount facility recycled 222 lbs of plastic wrap from its pallets.

Bulk Containers for Control Materials

West Maple Grove Bulk *Bti* In 2015, Maple Grove's use of a bulk container for *Bti* kept 360 bags from entering the waste stream and they improved the safety of the process by using a different method of filling the bags.

Oakdale, Andover, and Plymouth Bulk Natular Totes These facilities tested a new bulk loading system in the helicopter operations process to eliminated bags from the waste stream. In 2015, these bulk totes kept a combined 1,280 bags from being thrown into the garbage.



Renewable Energy

The “Renewable Energy” group continued to expand our knowledge on regional renewable energy projects. In 2015, the team focused on solar energy and reviewed projects in the metro area.



Our focus has been:

1. Understanding how the various solar energy systems work.
2. Reviewing how state, county and private entities are utilizing solar power systems.
3. Attempting to figure out where and how these systems could be best used in our operations.
4. Reviewing new technologies, equipment costs, incentive plans, rebate opportunities, consulting expenses, related costs of ownership and installation considerations.

In reviewing all of the related issues to purchasing and installing solar panels at one or more of our facilities, the question is: “Is it in our best interest to purchase and install solar equipment in our facilities?” From a budget standpoint, it does take a significant initial investment to purchase, install and manage a solar panel system. There are consulting costs, building modifications, additional insurance costs, security concerns, and increased staff time dedicated to these systems. Employees would have a significant learning curve to manage, operate and maintain a totally new power system. In addition, there would be further time to address the financial management of the generated power and how we would incorporate that aspect with the respective power companies involved in the various locations. All of these aspects and the lifespan of the equipment would have to be considered in these purchase(s) and calculated in the payback of an investment in a renewable energy system.

Solar energy equipment continues to evolve. Costs of equipment continue to drop, equipment is becoming less cumbersome, more durable, easier to use, and becoming more efficient in generating energy. As the industry continues to grow, it may become the best option to directly invest in equipment and benefit from generating our own power at our facilities.

There also are options being reviewed that would allow the District to utilize renewable energy sources without directly investing in solar power equipment.

As an alternative to directly purchasing solar panels, MMCD could purchase “green-generated” power through our respective power companies. Each power company has an option for buying

power that is solely generated by wind, water, geothermal and/or solar. MMCD would pay an additional fee for this power. For example for XCEL Energy customers, the average cost of generated “non-green” electricity in Minnesota is \$0.12 - \$0.14 per KWt/hr while the cost of green power is currently \$0.795 per KWt/hr. This is a significant cost increase but MMCD would incur no additional costs of equipment, installation, consulting fees, employee involvement or other related expenses.

Another option is crowd funding. This is purely an investing option in which a group can invest in solar projects strictly as an investment and support solar initiatives. The group then receives proceeds from the investment. As in any investment, this financial commitment may lose money so this option would hold risk.

Community solar projects are growing in our region. There are two options in this area – Local Solar Gardens and regional large scale Solar Farms. The first option of Local Solar Gardens is intriguing because our organization could participate in a local community project and still benefit directly from generating solar energy. MMCD would purchase solar panels that would be part of a larger project. MMCD would own the equipment but the project would be managed by the Solar Garden managers. The investment could be sold at later date. MMCD would benefit by the power generated would reduce our energy costs by the credits received from the solar array. These credits would depend on the energy produced by the number of the panels we own. MMCD would also benefit by not having to manage a solar system at our facilities and all of the related costs of installing, maintaining and operating solar panels on our buildings or grounds. More information can be found at <http://www.cleanenergyresourceteams.org/solargardens>.



Regional large scale Solar Farms are also becoming more available for organizations to invest in and support solar energy projects. These are large projects in which an organization would buy shares and receive deferred savings on green generated power. In this option, we would not own individual solar panels but only purchase shares of the project. These shares could be resold. It would not be as seamless as a local project because the MMCD would receive a payment for the power generated instead of it coming directly off on an energy bill. Most of these projects are based in rural areas and may not be as advantageous as a local project. Again, MMCD would benefit from not having to directly purchase and manage the solar array.

Plans for 2016

The group will meet to discuss options and further research opportunities to utilize renewable energy sources. We plan to continue learning from other organizations’ experiences to develop our own quality energy program. Our team will continue to review current data to focus on projects with the greatest return on investment, and understand what is the best option to recommend for our organization.

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.

2015 Activities

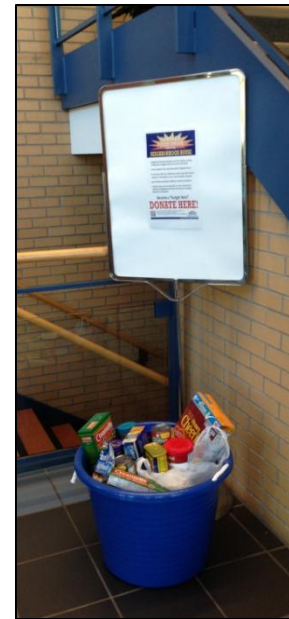
Shoe Drive: MMCD employees donated 170 pairs of shoes to Fishing for Life, an organization in charge of collecting, handling and transporting shoes to Haiti. We also donated 21 pairs of gently used boots to their annual sportsmen's garage sale. The money received from the sale goes directly to children in our community and wounded warrior support.



Food Shelf: For the third consecutive year employees donated nonperishable food items to the Neighborhood House in St. Paul totaling 133.2 lb of food and 7.5 lbs of fresh produce.

Newsletter: Continuation of a newsletter on sustainability with a new title. [RESources](#) contains topics about: reusing, reducing, recycling, volunteering opportunities, hazardous waste disposal, air quality, and what is happening in the world of sustainability.

Free Tables: Almost all facilities now have a "Free Table" where employees can place items they no longer want or need that others may have a use for.



Winter Survival Drive: Previously known as our Coat Drive, we expanded this year's collections to include all winter clothing (i.e. hats, mitten/gloves, scarves, snow pants, and boots) along with household items, personal hygiene products, and children's items. Fourteen winter coats, numerous scarves, hats, mittens, along with a variety of other items were donated by employees to Joseph's Coats in St. Paul; a free store which serves over one thousand individuals each week.

Plans for 2016

We plan on continuing and upgrading the programs from 2015, while also looking for new opportunities to assist our communities and enhance the health and wellbeing of our employees.

Members of the Sustainability Groups

Reducing Energy Usage

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

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, 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.