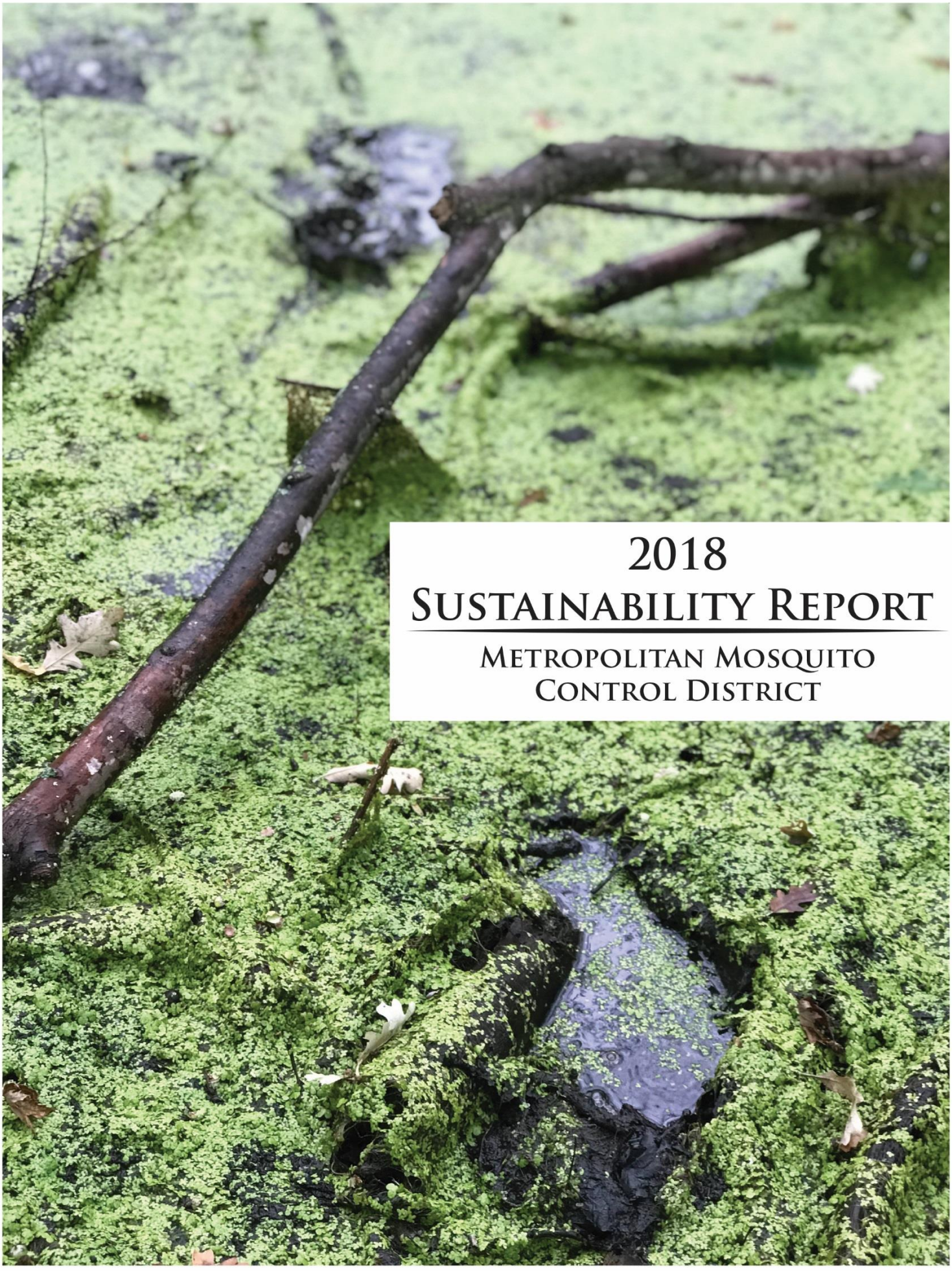

2018 Sustainability Report

Metropolitan Mosquito Control District

Our Values

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

Our Vision

To be the leading abatement district in the world.

Sustainability

For the MMCD, Sustainability means meeting the needs of the present without Compromising the ability of the 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.

mmcd

METROPOLITAN MOSQUITO CONTROL DISTRICT

Table of Contents

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 five opportunity areas: 1) reducing energy usage; 2) reducing waste; 3) identifying and using renewable resources; 4) promoting social responsibility and the health and wellness of our employees; and 5) compiling a guiding document, or Annual Report. In 2017, an additional area was added to focus on increasing the culture of sustainability.

Opportunity Area Goals:

Reduce Energy Usage

We are exploring strategies to save electricity by encouraging teleconferencing for meetings, by providing training with webinars and by developing scripts to automatically shut down computers outside of work hours.

We continue to review 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.

Reduce Waste

We are working to reduce our waste stream through more effective recycling practices, increasing organics composting, 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 and on the health and wellness of our employees.

Annual Report

We are focusing on documenting our sustainability efforts.

Sustainability Culture

We are focusing on turning our sustainability initiatives into a sustainability culture.

Reducing Energy Usage

The Reducing Energy Usage group focused on reducing MMCD's overall energy consumption, specifically by reviewing MMCD electricity and fuel consumption and considering ways to reduce energy usage. Between 2013 and 2018 the group worked to reduce both electricity and fuel consumption. We compared forecasted and actual energy and fuel savings to evaluate improvements we achieved. Between 2016 and 2018 we concentrated on electricity used by computers and integrating more fuel-efficient vehicles into our fleet.

Reduce Electricity

Project 1- Evaluate energy use of computers to estimate potential savings achieved by automatic shutdown.

Baseline Information: In 2016 the group tested a device that can measure energy usage by District equipment to develop a way to estimate potential energy savings achievable using automatic computer shutdown. In 2017 the group used this device to measure energy use by computers (in watts) in four power configurations ("active" mode, "sleep" mode, turned off, and unplugged from power source). In 2018 we compared our energy measurements to energy consumption values in product specifications to verify that we could use product specifications to accurately estimate energy use. We converted watts to kilowatt hours (kilowatt hours = (watts*hours)/1000).

Strategy: We compared energy used by a computer with one monitor in various modes ("active" and "sleep," especially) that we measured in 2017 with the energy use values included with the computer and monitor product specifications.

Project Status: In 2017 we determined that the computer with one monitor was used in "active" mode an average of 8.43 hours each day from Monday through Friday for a total of 42.16 hours (25%) per 168-hour week. Each week the computer plus one monitor used 1.79 kilowatt hours during the 42.16 hours it was used in "active" mode. Leaving the computer in "sleep" mode the remainder of the week resulted in total weekly power usage of 4.56 kilowatt hours. If the computer plus one monitor had been in "active" mode the entire 168-hour week, the total power usage would be been 7.14 kilowatt hours. "Sleep" mode saved 2.58 kilowatt hours (36%).

Turning the computer and monitor off (power strip on – i.e., still plugged in) reduced power usage by 2.24 kilowatt hours to a total of 2.32 kilowatt hours per week (an additional 31%).

Turning the power strip off (effectively unplugging the computer) reduced power usage by an additional 0.47-kilowatt hours (6.5%) to 1.85 kilowatt hours used per week.

These results strongly suggest that maximizing the time the computers are in "sleep" mode and/or turned off while not in use can significantly reduce energy used by computers.

In 2018 we compared power usage values listed in product specifications with results of measurements completed in 2017. We found that power usage values in product specifications

were virtually identical to measurements (Table 1). This means we should be able to use product specifications to forecast how much power we could save by employing different strategies (e.g., maximizing time in “sleep” mode or computer turned off) with various computer configurations.

Table 1. Comparison of measured power (kilowatt hours) use by a computer with one monitor with power use levels in product specifications.

	Measured Power Use			Power Use (Specs)	
		Δ			Δ
	kilowatt-hours	kilowatt-hours		kilowatt-hours	kilowatt-hours
Computer Status	(per 60 min)	(per 60 min)		(per 60 min)	(per 60 min)
Computer & Monitor On	0.0425			0.0406	
"Sleep" Mode	0.0220	0.0205		0.0200	0.0205

Next, we queried IT staff to learn what computer functions they conduct during the 24-hour day and which computer power modes are compatible with these functions. IT staff reported that they regularly service District computers using automatic updates during non-work hours. Computers that are in “active” or “sleep” mode are compatible with these update activities. Computers that are turned off during non-work hours must be updated manually during work hours which would consume significant amounts of additional work time. Therefore, maximizing the time that computers are in “sleep” mode when they are not being used seems to be the best way to save energy without impacting IT functions.

Work Remaining: In the future we should be able to use power use values in product specifications to determine which strategies (e.g., “sleep” mode timing) will save the most energy while minimizing impact on District work.

Project 2- Quantify mileage saved by teleconferencing

Baseline Information: Assume no mileage (or fuel) savings if everyone drives to meetings. In 2015 two employees (Eva Knudsen and Carol Mertesdorf) developed a spreadsheet tool to document all meeting members who participated remotely (via teleconference). Beginning on April 23, 2015 the Sustainability group documented who participated via teleconference at each field facility. Participation in five meetings via teleconference saved about 743 miles of driving which equates to about 31 gallons of fuel with a value of almost $79. In 2016 both CSDM and Sustainability used the spreadsheet. Together, teleconferencing by these teams saved about 4,578 miles of driving which equates to about 187 gallons of fuel with a value of almost $379. The 153 staff hours saved equals nearly four 40-hour workweeks worth of time. Similar savings were achieved in 2017 (143 staff hours, 4,209 miles of driving which equates to about 171 gallons of fuel with a value of almost $374).

Strategy: In 2018 the Sustainability team used the spreadsheet to document participation via teleconference. More teams were encouraged to use the spreadsheet but none did.

Project Status: In 2018 our Sustainability group documented participation via teleconference for eleven of eleven meetings: CSDM documented participation in four meetings (Table 2).

Table 2 Estimated mileage, fuel and staff time savings accrued by all District employees participating in Sustainability and CSDM meetings via teleconference.

Team	Date	Total Miles Saved	Average miles/gal	Average Fuel Saved (gal)	Daily Fuel Price	Dollars Saved	# staff tele-conferencing	Staff Hours Saved
Sustainability	1/10/2018	189.4	28.3	6.70	$2.49	$16.69	7	7.68
Sustainability	2/7/2018	233.4	25.5	9.15	$2.59	$23.69	8	8.65
Sustainability	3/14/2018	233.4	25.5	9.15	$2.59	$23.69	7	6.88
Sustainability	4/18/2018	277.4	23.9	11.59	$2.59	$30.02	9	9.63
Sustainability	6/6/2018	169.0	30.3	5.57	$2.89	$16.10	5	6.53
Sustainability	7/11/2018	233.4	25.5	9.15	$2.89	$26.44	8	7.56
Sustainability	8/8/2018	144.4	25.9	5.58	$2.89	$16.12	7	7.05
Sustainability	9/12/2018	233.4	25.5	9.15	$2.79	$25.52	7	7.65
Sustainability	10/17/2018	277.4	23.9	11.59	$2.79	$32.34	8	7.85
Sustainability	11/14/2018	188.4	23.5	8.02	$2.59	$20.78	8	6.94
Sustainability	12/12/2018	0.0	0.0	0.00	$2.39	$0.00	0	0.00
Totals		**2179.6**		**85.64**		**$231.38**	**74**	**76.44**
Team	**Date**	**Total Miles Saved**	**Average miles/gal**	**Average Fuel Saved (gal)**	**Daily Fuel Price**	**Dollars Saved**	**# staff tele-conferencing**	**Staff Hours Saved**
CSDM	3/8/2018	277.4	23.9	11.59	$2.59	$30.02	9	9.61
CSDM	4/3/2018	277.4	23.9	11.59	$2.59	$30.02	9	9.61
CSDM	6/5/2018	277.4	23.9	11.59	$2.89	$33.50	9	9.61
CSDM	12/19/2018	277.4	27.1	10.25	$2.27	$23.26	10	10.61
Totals		**1109.6**		**45.02**		**$116.81**	**37**	**39.44**

In 2018 participating via teleconference in Sustainability and CSDM meetings (Table 2) meetings saved about 116 staff hours and about 3,289 miles of driving which equates to about 131 gallons of fuel with a value of almost $348. These savings are very similar to those achieved by the Sustainability Team in 2016 and 2017.

Work Remaining: In 2019 we plan to continue to encourage other teams to use and document teleconferencing. We recognize that teleconferencing does not work for all teams or circumstances.

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. Between 2015 and 2018 we continued to integrate and evaluate more fuel-efficient vehicles into MMCD's fleet. In 2018 we replaced four auctioned vehicles with Prius hybrids. We continued with overall projects initiated in 2013 (Table 3).

Table 3. Fleet Review Process: Ongoing Projects and Longer-Term Plans.

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

Work Remaining: In 2019 we plan to continue to replace some auctioned vehicles with higher-mileage models including hybrids such as the Prius.

Potential Reducing Energy Projects in 2019

Energy savings by controlling computer on ("active" mode) time

Next steps: In 2019 we plan estimate power usage by computer-monitor configurations in use District-wide using product specifications. We should be able to use power use values in product specifications to determine which strategies (e.g., "sleep" mode timing) will save the most energy while minimizing impact on District work.

Encourage remote participation in meetings and training via teleconferencing and webinars

Next steps: Mileage and staff time savings achieved in 2016-18 indicate that we should continue to encourage and document both participation via teleconference in all applicable District meetings and Webinars for all applicable District training in 2019 and beyond.

Increase fuel efficiency of District fleet

Next steps: Fuel savings achieved by hybrid vehicles means we should integrate these kinds of vehicles into our fleet. We plan to actively research other hybrid vehicles and potentially attractive technologies to evaluate which might help us continue to improve the fuel efficiency and versatility of our fleet. To make available more vehicle models (especially hybrids such as the Prius) we may explore ways to purchase vehicles not available through the Minnesota State Contract or difficult to secure through sealed bids. This plan will augment purchases through the Minnesota State Contract.

Reducing Waste

The Reducing Waste group's mission is to reduce the waste stream in all processes and to share the techniques, processes, and experiences 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.

2018 was another successful year for all facilities. Composting became the norm throughout the District with all facilities reporting the widespread use of composting organic material. Facilities used the compost in various ways such as gardens and prairie restoration projects. Three facilities reduced their paper towel waste by converting to personal re-usable hand towels in their restrooms. Other facilities began composting their paper towels. Also new in 2018 was plastic bag recycling receptacles in our facilities.

Organics Recycling

In late 2016, organics recycling bins were added at the Saint Paul Main Office to several meeting rooms and the lunchroom along with 'paper towel only' bins in restrooms. In 2018 we were able to expand that program to an additional office. These organics are collected into a 90-gallon bin and taken weekly by a commercial hauler. In 2018, we removed nearly 1,500 gallons of organics from our waste stream by using organics recycling.

Control Material Bag Recycling

In 2018, we continued to reduce the amount of control material containers that enter our waste stream. Due to the District using over 20,000 bags annually, these control material bags have been our biggest source of waste. We continue to work with our vendors to find new ways to eliminate packaging waste. We continued to convert more of our materials to bulk containers or find new innovative options. One manufacturer continues to take back all of our empty bags for future reuse of those materials. Since pesticide bags have limited use in recycled products, the manufacturer is collecting the empty bags and is working with a recycler to develop a method to reuse the raw materials. We returned over 20,000 bags (each bag weighs approx. 0.46 lbs.) which saved approximately 9,200 pounds of trash from entering our waste stream. It is currently the

manufacturer's goal to reuse the raw materials and create reusable pallets that they could use to ship our control materials. These new pallets would replace the current wood pallets.

The District continues to return pallets to vendors for reuse and to recycle cardboard packaging and shrink wrap from all shipments. In 2018, the District returned 558 pallets for re use. MMCD also used reusable containers to transport materials from the bulk containers to field in order to reduce packaging that went to the field and avoid any accidental loss of packaging in the environment.

The District recycles all plastic control materials jugs through the national Ag Container Recycling Council (ACRC) program. All jugs are collected, triple rinsed and shipped to a recycling center for reuse. The District also assists other agencies to recycle their containers by being a collection point every other year for the ACRC program. Nationally, this program has collected and recycled an estimated 125,000,000 pounds of empty containers since its inception in 1992. MMCD is proud to be properly recycling pesticide containers in this program since 1995.

Bulk Tote Containers for Control Materials

The District continues to move towards using more reusable bulk containers in our operations. Utilizing these larger totes (1,000, 1,600 & 2,000 lb.), we create less container waste and our staff spends less time & effort handling waste products. In 2018, we purchased Natular G30 granules (86,400 lbs.), Altosid pellets (50,000 lbs.), and VectoBac 12-AS Liquid (528 gallons) in bulk containers. These purchases allowed the District to reduce the number of individual containers (4,643 units) and removed them from the waste stream.

Vendors are assisting us to use bulk totes in our operations. One manufacturer is working with the District to use a new pump system to apply VectoBac 12-AS Liquid. This truck-mounted system allows employees to apply the liquid from bridges to the rivers. This reduces the time to make these applications, eliminates the jugs, reduces lifting of containers, and decreases the amount of time our employees are on highway right of ways. This safety aspect reduces the exposure our of employees to possible traffic incidents.

Renewable Energy

The "Renewable Energy" group continued to expand their knowledge on regional renewable energy projects. In 2018, the team continued to focus on solar energy, local solar educational/promotional support groups, and reviewed projects in the metro area.

We have explored adding solar panels to District properties and have determined them to be outside of current budget constraints. Although any building modifications may be on hold, the District still actively reviews the solar industry and is keeping up on the latest trends.

There are options that are being reviewed to examine this question that would still allow the District to utilize renewable energy sources without directly investing in solar power equipment within our facilities. At this time, explored options (i.e. buying power generated by renewable sources) are more expensive than current sources. We will continue to watch pricing so we can revisit options when our financial situation changes.

Community solar projects continue to grow in our region. The 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 receive credits from the solar array which would ultimately reduce our energy cost. These credits would be respective of 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 the all of the related costs of installing, maintaining, and operating solar panels on our buildings or grounds. More information can be found at www.cleanenergyresourceteams.org/solargardens

MMCD purchased electric backpacks to evaluate these units for use in our operations. At this time, the electric backpacks currently cannot produce the required droplet size for our control materials. We will continue to work with these units to find an operational niche in which we can utilize a non-gasoline backpack.

Wind generated energy is another possibility for the District. The team reviewed larger windmill projects but there is also a large financial outlay for those projects. Small-scale windmills are becoming more affordable and technology is continually improving. Partial energy replacement by small wind generators may be a smaller investment and a good first step towards renewable energy.

The group will meet to discuss the above options and further research opportunities to utilize renewable energy sources. We plan to continue learning from other organization's experiences to develop our own quality renewable 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, as well as state, national, and international perspectives.

2018 Activity Highlights

5th Annual Shoe Drive: MMCD employees donated 87 pairs of shoes to Fishing for Life, an organization in charge of collecting, handling and transporting shoes to Haiti. We also donated 30 pairs of gently used hip waders and 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: District employees conducted a fifth annual summer food drive. 1300 lbs. of donated food items went to both Neighborhood House in St. Paul, and Scott/Carver/Dakota CAP Agency. A large portion came from the East Region (960 lbs.) and from the Jordan facility (191 lbs.) who both used crew competition as an incentive.

Newsletter: Continuation of a newsletter on sustainability is now in its fifth year. RE**Sources** contains topics about: reusing, reducing, recycling, volunteering opportunities, hazardous waste disposal, air quality, what is happening in the world of sustainability, and health and wellness for our employees.

Chili Cookoff: This year the full-time staff had their first cookoff competition. With so many new employees, the social responsibility team thought it would be a good idea to bring together everyone from each facility for a pot-luck style lunch to promote connection and wellbeing among the new and experienced staff. East won the trophy for "Best Chili", and North won the trophy for "Best Dessert" with their salted nut rolls.

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

Trapped Rodents: Over 1000 rodents collected during our Tick Distribution Study were donated to the Wildlife Science Center to help feed raptors in captivity.

Unwanted Eyeglasses Collection: 28 pairs of glasses were collected and donated to the MN Lions Eyeglass Recycling Center that distributes them to the poor in developing countries.

Hotel Shampoos, Soaps and Toiletries: Over 25 lbs. of toiletries were collected and donated for homeless veteran's shelters.

Winter Coat Drive: A carload of winter coats brought in by staff were donated to Joseph's Coats; Joseph's Coats is a Twin Cities organization that provides fall and winter clothing to those in need.

Prairie Plantings: In 2017, a new prairie was planted on the St. Paul property and an existing prairie was reseeded on the Rosemount property. This year, maintenance cuttings were done to both prairies. These prairie plantings reduce the need for mowing, prevent erosion and provide food and habitat for birds and many insects including native pollinators.

Vegetable Gardens: The vegetable garden at the Plymouth facility produced a variety of food used at the facility and even enough to take home. The North facility started some tire gardens which both reused some of the tires we regularly collect, and produced food.

Plans for 2019

We plan on continuing and upgrading the programs from 2018, while also looking for new opportunities to assist our communities and enhance the health and wellbeing of our employees. Some of the new activities include, but not limited to:

- School Supply Drive
- Blood Drive
- "Dress for Success" Collection

Sustainability Culture

Staff at MMCD desire to engrain sustainability into the culture of the District. In 2013 MMCD's Sustainability Steering group was assembled to set up a framework for incorporating sustainability principles into the organization.

In 2018 staff felt that we should go farther. While we have achieved significant successes in our opportunity areas, we envision involving all employees in a sustainability "lifestyle" as our next quantum leap. Clarke Mosquito Control verbalized this as moving from sustainability to flourishing, improving all aspects of employees work experiences and work products by doing their part to create and live a fully sustainable life for the foreseeable future. MMCD staff designated this as moving to a sustainability culture for all MMCD employees and activities. We have patterned our approach to the safety culture we developed which has enabled us to significantly decrease the number of employee injuries and vehicle incidents. Employees who live with safety in mind end up experiencing fewer adverse events. One of our goals was involving and convincing all employees that sustainable living and working also is the most efficient way to deliver services to District citizens using available resources.

First Sustainability Summit

On May 17, 2018 we invited all interested MMCD employees to our first sustainability summit. We reviewed what we meant by a sustainability culture and proposed a few ideas about how to achieve it. We reviewed the history of our efforts since 2013. We also reviewed the Problem-Solving steps to be applied to each idea. Then we broke into small groups to choose a sustainability-related problem to work on. Later during the summit, each group shared with all participants the problem it chose, the positive and negative aspects of potential solutions, ranked the solutions by degree of difficulty and described how to measure success (Table 1). Then we chose one of the problems and solutions to try at all MMCD facilities.

Table 1. Concepts discussed at the May 17 sustainability summit.

Create Incentives to Recycle – Reasons Why!
Moving from Expectation to Requirement
Things all Facilities have in Common
Simplification of Process

Second Sustainability Summit

On August 15, 2018 we invited all interested MMCD employees to our second sustainability summit. Each group (six field facilities and St. Paul office) described what they had tried, what worked well, what problems they encountered, how they planned to proceed after August, the cost to the District and any potential savings.

Then everyone reviewed these reports for common threads including successes and common problems. We proposed how to maintain motivation throughout the year and how to continue in

2019. We also discussed how to involve seasonal employees when they start work in 2019. We ended with a potluck barbecue to celebrate our successes.

Complete notes from the May and August Staff Sustainability Summits are available upon request.

Plans for 2019

In 2019 we plan to include sustainability in seasonal inspector recruitment materials the way we have included safety. Our idea is to select sustainability minded applicants who should be more interested in participating in District sustainability activities. We also plan to continue convening sustainability summits to facilitate sharing ideas and emphasize all staff working together to incorporate sustainability into all aspects of District culture and operations.

Members of the Sustainability Groups

December 2018 (facilitators underlined)

Reducing Energy Usage

Aubrey Soukup, Monica Wickelgren, John Walz,
Jon Peterson, Stephen Manweiler, Matt Giesen

Reducing Waste

John Walz, Monica Wickelgren, Matt Giesen, Kathy Beadle, Mark Smith,
Loren Lemke, John Lundquist, Andrea Vollmuth

Renewable Energy

Mark Smith, Eva Knudsen, Kirk Johnson, Stephen Manweiler, Jon Peterson,
Molly Nee, John Walz, Jennifer Crites

Social Responsibility and Wellness

Eva Knudsen, Carey LaMere, Mike McLean, Loren Lemke, John Lundquist, Molly Nee,
Kathy Beadle, Andrew Moua, Aubrey Soukup, Kirk Johnson

Annual Report

Mike McLean, Carey LaMere, Molly Nee

Sustainability Culture

Stephen Manweiler, Eva Knudsen, Andrea Vollmuth, Monica Wickelgren,
Kathy Beadle, Jennifer Crites, Loren Lemke

Seasonal Staff Members