The Solid Waste Environmental Management System (EMS) program is a continuous improvement program—measuring environmental performance in six program components. Participating solid waste agencies implement a management system throughout their operations and organizations—following a framework of 10 elements.

The EMS program—an approach that rewards environmental stewardship efforts beyond waste reduction—is an alternative to Solid Waste Comprehensive Planning. Sixteen solid waste agencies—serving more than half of Iowa’s population—voluntarily participate by pursuing local environmental goals.

**FOLLOWING A CYCLE OF CONTINUOUS IMPROVEMENT**

**ACTIVELY PURSUING 6 PROGRAM COMPONENTS**

![Diagram showing the cycle of continuous improvement and the six program components: Plan, Do, Check, Act, Organics Management, Greenhouse Gas Reduction, Household Hazardous Materials Collection, Recycling Services, Water Quality Improvement, Environmental Education.]

**IMPLEMENTING A FRAMEWORK OF 10 ELEMENTS**

![Diagram showing the framework of 10 elements: Environmental Policy, Environmental Impacts, Objectives & Targets, Action Plan, Roles & Responsibilities, Communication, Training & Awareness, Legal & Other Requirements, Revaluation & Modification, Assessment, Monitoring & Measurement.]

**DNR PROGRAM SUPPORT**

DNR supports program participants with grant opportunities and by providing training workshops, an annual conference, technical assistance and external auditing services.

In FY2022, DNR developed a Guide to Objectives and Targets and introduced this new resource to participants during the Summer Workshop. An accompanying form—to streamline documenting and reporting objectives/targets—was also introduced and widely adopted by participants.

**FY2022 EMS PROGRAM COSTS**

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third-party external auditing</td>
<td>$35,000</td>
</tr>
<tr>
<td>Technical assistance and participant training/support</td>
<td>$49,476</td>
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<tr>
<td>Grant awards</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$416,052</strong></td>
</tr>
</tbody>
</table>
ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) PROGRAM PARTICIPANTS

CRLCSWA
Cedar Rapids Linn County Solid Waste Agency

DMASWA
Dubuque Metropolitan Area Solid Waste Agency

GRRWA
Great River Regional Waste Authority

HCLC
Harrison County Landfill Commission

ICLF
Iowa City Landfill and Recycling Center

LNI
Landfill of North Iowa

MCSWMC
Mahaska County Solid Waste Management Commission

MWA
Metro Waste Authority

NPRPA
Northern Plains Regional Planning Area

OWCSWC
Ottumwa/Wapello County Solid Waste Commission

RASWC
Rathbun Area Solid Waste Commission

REIC
Iowa County Regional Environmental Improvement Commission

SCISWA
South Central Iowa Solid Waste Agency

SWMCMC
Solid Waste Management Commission of Marshall County

WCISWMA
West Central Iowa Solid Waste Management Association

WCSC
Waste Commission of Scott County

PARTICIPANT ACHIEVEMENTS

At a local level, participants work to achieve quantifiable objectives and targets—resulting in environmental changes within their service areas.

ORGANICS MANAGEMENT

EMS participants work to divert organic material from landfills by reusing material or processing it into beneficial products, like compost or mulch, which helps enrich soil, reduce erosion and improve plant growth.

- **CRLCSWA** sold and distributed more than 10,000 tons of compost to residents through their promotional efforts, including a radio ad campaign and outreach at the local farmers’ market.

- To reduce contamination in curbside collection of yard waste and food scrap, **ICLF** launched an outreach campaign that cut contamination by half.

- **SCISWA** equipped two elementary school classrooms with vermicomposting towers and learning resources. Students fed and cared for worms, which ate and digested food scraps and bedding, before eliminating them as a beneficial soil. This project diverted 89 pounds of organic material from the landfill.

- Working with a greenhouse tomato grower, **LNI** diverted 203 tons of organic material from the landfill that was used instead as composting feedstock.

- **MCSWMC** collected 48,180 pounds of pallets for reuse and clean wood material to be processed into bedding through a recovery program incentivized with a tipping fee discount.
**HOUSEHOLD HAZARDOUS MATERIALS COLLECTION**

Each EMS collects household hazardous material, keeping pollutants out of the landfill and decreasing waste. Much of the material, like partially-used paint or household chemicals, becomes available in the local solid waste agency’s swap shop to be used by someone else.

- **GRRWA** updated their swap shop with new shelving, investigated products in highest demand and promoted their swap shop on Facebook.
- **DMASWA** reestablished their Reuse Shed, driving down costs for material diverted from the landfill and saving more than $3,000.
- Benefiting from promotional efforts on Facebook and in the local newspaper, **REIC** collected more than 2,000 pounds of material, a 75 percent increase from the previous year.
- **OWCSWC** increased participation in their program by 7 percent, logging in 240 participants over 18 months.

**WATER QUALITY IMPROVEMENT**

EMS participant efforts focused on protecting water as a natural resource and removing pollutants.

- Recruiting volunteers, **WCSC** conducted two major clean-up efforts, removing nearly 400 tires and more than 70 bags of debris with project partner Nahant Marsh Education Center. After the clean-ups, 12 acres of wetlands were constructed—providing wildlife habitat, intercepting runoff and removing pollutants from surface water.
- To help protect a local creek, **MWA** installed a bioreactor to filter water running onto their landfill from a neighboring field. A water sample test showed that the bioreactor filter, a trench of woodchips where microorganisms remove excess nitrates from flowing water, removed 90 percent of nitrates in the runoff.

**GREENHOUSE GAS REDUCTION**

Greenhouse gas emissions directly correlate to energy and fuel use. To reduce emissions, EMS participants focused on reducing energy needs and reliance on non-renewable sources.

- With routine maintenance and simple installations, **MCSWMC** reduced their kWh usage by 29 percent and their propane usage by 52 percent by minimizing unnecessary lighting, cleaning the air conditioning condenser, moderating thermostat settings and installing door draft stoppers.
- Through improvements to methods and equipment used to water roads at the landfill, necessary to minimize dust, **WCSC** cut fuel usage by more than 70 percent, saving nearly 300 gallons of fuel in 12 months. The improvement process, which included running a pilot with a rental truck and then purchasing a used watering truck, reduced the operation’s water usage by 38 percent and staff time by 67 percent.
- **MWA** installed a solar energy system at their central office. Based on real-time data, MWA projects the system will supply 25 percent of the site’s electricity in the coming year.

**RECYCLING SERVICES**

Collection efforts are key to recycling. EMS efforts focused on classic material separation, especially paper, plastic, glass and metal.

- Building on existing student-led recycling systems established by **WCISMA** at two local schools, students separated and weighed more than 11,800 pounds of classroom materials, which was then processed at WCISWMA’s recycling facility.
RECYCLING SERVICES (cont.)

- Both [MCSWMC](#) and [SWMCMC](#) collected 20 tons of material, including paper, cardboard, plastic, glass and metal containers at new convenient drop-off recycling sites established at their respective landfills with EMS grant funding.
- [ICLC](#) used EMS grant funds to open three new drop-off sites for glass recycling and promoted the expansion with ads on Iowa Public Radio and by distributing informational drink coasters.
- [OWCSW](#) recovered almost 40 tons of scrap metal that was hauled to the landfill by pulling it out at the active face for recycling.

ENVIRONMENTAL EDUCATION

Environmental education activities, including public outreach and promotion, are integral to the success of objectives/targets in all EMS program components. Environmental education is also its own component area—with each participating agency working to increase awareness, grow knowledge and create behavior change in their communities.

- To better serve the 20 percent of the county’s population that speaks Spanish, [SWMCMC](#) hired a professional translator, producing Spanish informational publications that were a graphic mirror image of their English publications.
- [DMASWA](#) used EMS grant funding to make its website mobile-friendly—resulting in lower bounce rates and doubling the number of new users for their waste search tool.
- To increase awareness of their programs, [REIC](#) created a Facebook page and established a baseline for the number of followers, expecting to double that number in the next fiscal year.

- [GRRWA](#) partnered with the local county conservation district to put water test kits in the hands of 72 middle school students for an experiential lesson in water quality.
- [LNI](#) focused on providing education about proper management of hazardous waste derived from farming by giving presentations to and hosting 40 students enrolled in environmental science and agriculture classes at the local community college.
- Incorporating the DNR’s “I Am a Recycler” campaign into their poster contest, [SCISWA](#) engaged 535 elementary school students into drawing “selfies” of themselves actively recycling.

BATTERY COLLECTION

EMS participants ramped up their goals for collecting batteries, focusing on separating out batteries that contain hazardous materials—such as rechargeables and lithium batteries—that may ignite or explode if compacted in a landfill or crushed at a recycling facility. By collecting these batteries as a separate stream, not only is material recycled but contaminants are kept out of the landfill.

- [CRLCSWA](#) created informational handouts and aired radio commercials, prompting residents to drop off 3,340 pounds of batteries.
- [ICLC](#), [LNI](#) and [WCISWMA](#) each set-up additional battery drop-off sites in public spaces and by partnering with local businesses, increasing accessibility and convenience for residents.
- [MCSWMC](#) started a battery collection program at the landfill, collecting 45 pounds in the first month.
- [DMASWA](#) ran a social media campaign in September 2021, engaging 486 people and increasing their annual battery collection to nearly 700 pounds.