

ENVIRONMENTAL MANAGEMENT SYSTEM



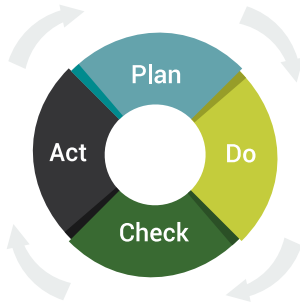
ANNUAL REPORT
FISCAL YEAR 2024

www.iowadnr.gov/swems

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. Thirteen 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



IMPLEMENTING A FRAMEWORK OF 10 ELEMENTS



DNR PROGRAM SUPPORT

DNR supports program participants with grant opportunities for measurable, environmental improvement projects in program component areas. In FY2024, DNR awarded \$339,638 in grant funds for twelve projects with a total cost of \$1,233,016. DNR also offered four in-person networking/training events, including a fall conference with an emphasis in organics management, a summer workshop that focused on grant opportunities, an essentials training for core team members, and an internal auditor training. EMS program costs are sourced from the landfill alternatives account of the groundwater protection fund.

FY2024 EMS PROGRAM COSTS	
Third-party external auditing	\$37,500
Technical assistance and participant training/support	\$30,775
Grant awards	\$339,638
TOTAL	\$407,914

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

MCSWMA

Muscatine County Solid Waste Management Agency

SCISWA

South Central Iowa Solid Waste Agency

SWMCMC

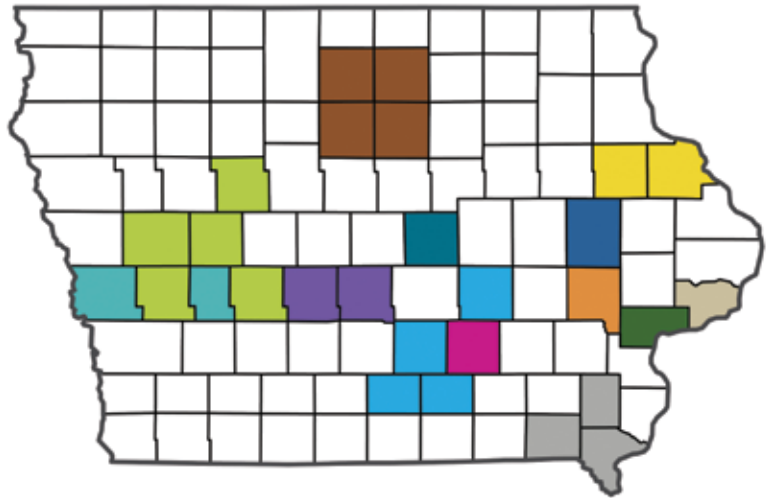
Solid Waste Management Commission of Marshall County

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 improvements within their service areas. DNR provides grant opportunities for up to 75% of project costs to assist participants in reaching their environmental goals. Highlighted below are grant projects that were completed during FY2024.

CEDAR RAPIDS LINN COUNTY SOLID WASTE AGENCY— Cardboard Diversion

Working to increase cardboard recycling and improve operational efficiencies, CRLCSWA installed a new baler at its Resource Recovery Building. To promote its free drop-off program and reduce contamination from polystyrene and plastic wrappings, CRLCSWA ran several ad campaigns, including catchy radio ads that rebranded old corrugated cardboard (OCC) to O-C-C for Only Clean Cardboard. Compared to base year data, the project increased cardboard by 9.4% to 498 tons—equivalent to 1.5 million 18x13x5 shipping boxesⁱ. EMS grant funds of \$56,136 were used for this \$76,058 project.



Baling cardboard at CRLCSWA.



Glass collection container in Dubuque County.

DUBUQUE METROPOLITAN AREA SOLID WASTE AGENCY— Increase Glass Recycling

To better serve residents in smaller communities and rural areas, DMASWA expanded its glass recycling collection program beyond the City of Dubuque, doubling the number of drop-off sites. New roll-off collection containers—signed with informational graphics, fitted with opening sizes to prevent contamination and equipped with remote monitoring capabilities—were placed in three Dubuque County communities. With a concerted educational effort to promote glass recycling, including local press releases and a targeted social media campaign, DMASWA increased yearly glass collection by 38.49%, successfully aligning the project to serve the 40% of the county population outside of the City of Dubuque. Overall at the six drop-off sites, 143 tons of glass – equivalent to 394,680 glass beverage bottlesⁱⁱ—were collected and recycled. DNR granted \$23,485 for this \$34,253 project.

GREAT RIVER REGIONAL WASTE AUTHORITY—All Sites Solar

Using a phased approach, GRRWA installed a rooftop solar energy system at its transfer station in Keokuk and three additional systems at its Fort Madison landfill facility, including a dual axis array at the administration building and rooftop installations on the recycling center and shop building. Once all systems were on-line, overall electricity usage from the grid was reduced by 37% as compared to a base year, resulting in a \$7,648 savings. The avoidance of 64,179 kWh is equivalent to the emissions of 6.4 gasoline-powered carsⁱⁱⁱ—reducing CO₂ emissions by 45 metric tons. Based on a 30-year lifecycle for the solar energy systems, DNR’s investment of \$50,000 in grant funding for this \$184,759 project is \$37 per metric ton of CO₂, well below the federal Energy Earthshots Initiative to reduce the cost of CO₂ removal to less than \$100 per ton by 2032^{iv}.



Roof-top solar array on the transfer station in Keokuk.



LNI’s distribution of trees for planting.

LANDFILL OF NORTH IOWA—Trees for Tomorrow

In response to significant tree damage after being hit by a derecho and a tornado, LNI partnered with local residents—planting 150 native trees throughout the impacted communities. To boost transplanting success, LNI provided a watering bucket, compost and mulch along with a planting guide for each containerized tree that was distributed for planting. Based on a 90% survival rate, these trees are projected to sequester 907,668 pounds of CO₂ over the next 50 years^v—equivalent to powering 200 homes and valued at \$21,110^{vi}, nearly a four-fold increase of DNR’s \$5,435 financial assistance for this \$9,047 project.

MAHASKA COUNTY SOLID WASTE MANAGEMENT COMMISSION—Recycling Drop-off

MCSWMC improved its newly established recycling drop-off site at its landfill facility by adding two roll-off containers for collecting recyclables, covering the area with carports, and constructing a concrete bunker. MCSWMC successfully increased awareness of its program with an educational campaign, including local radio advertising, social media posts and on-site signage. In the first year after implementing the project, MCSWMC collected 57 tons of cardboard, mixed paper, and containers made of plastic, glass and metal—more than doubling its collections from the previous year. The estimated revenue generated throughout the entire process of recycling these materials is \$10,112^{vii}, matching DNR’s investment of \$36,038 for this \$48,051 project in 3.6 years.



Construction of concrete bunker for glass storage at MCSWMC.



METRO WASTE AUTHORITY—Hydrant and Automatic Sprinkler for Metro Compost Center

To optimize moisture levels in organic materials, MWA installed a new waterline, hydrant and auto sprinkler at its compost site—accelerating material decomposition rates that increased its facility’s annual processing capacity of locally-sourced yard waste to 37,677 tons. As a result, MWA’s overall product sales for closed-loop recycled products increased by 26% to 26,411 cubic yards. Additionally, because of the added-in moisture, MWA’s Grow Gold compost product was elevated to an industry-standard preferred category—giving residents and area businesses a high-quality, beneficial yard and garden product to enhance local soils for improved plant health. DNR grant funds contributed \$8,560 for this \$13,728 project.

Automatic sprinkling system at MWA’s compost facility.

SOLID WASTE MANAGEMENT COMMISSION OF MARSHALL COUNTY—Solar Panels

SWMCMC installed a solar energy system, comprised of three solar arrays at the Marshall County Landfill with arrays at the scale house/office, the warehouse and the leachate lift station. In the first year after the solar energy system was installed, with two of the arrays operational all twelve months and the third array coming on-line for the last six months, the facility’s overall electric usage from the grid decreased by 50% to 20,675 kWh – the energy equivalent of burning 8 tons of coal^{viii}. To encourage renewable energy in the planning area, MCSWMC hosted an open house showcasing the new system. Grant funds covered \$24,999 of this \$74,655 project.



Solar array for the scale house/office at SWMCMC.



WASTE COMMISSION OF SCOTT COUNTY—Electric Fork Truck Usage

Switching from propane-powered to an electric-powered fork truck, WCSC drastically reduced greenhouse gas emissions generated from moving the 1,200 tons of electronic devices processed for reuse or recycling in its Electronic Recycling Center. Taking into account that electricity to charge the fork truck’s battery was primarily derived from wind energy, emissions were cut by 96% from a baseline of 10.49 pounds of CO₂ per ton recycled to 0.45 pounds for an annual reduction of 5.5 metric tons of CO₂ – equivalent to 125 propane forklift cylinders or driving a gasoline-powered car for 14,067 miles^{ix}. DNR grant funding covered \$24,999 of the \$42,699 cost for the electric-powered fork truck that has a projected 10-year service life.

Electric-powered fork truck at WCSC.

WEST CENTRAL IOWA SOLID WASTE MANAGEMENT ASSOCIATION—Plastic Baler

Expanding an existing recycling sort operation at its Recycling Center, WCISWMA added a fifth baler and conveyor to begin recovering #5 polypropylene plastic packaging, such as yogurt, margarine and shampoo containers. WCISWMA coordinated a public awareness campaign that included local newspaper and radio advertising, creating digital media posts and distributing informational cards—prompting residents to include polypropylene containers in both curbside and drop-off recycling programs. In the first full year of this landfill diversion program, WCISWMA baled thirteen tons of polypropylene—equivalent to nearly 500,000 pint-sized deli containers^x— for recycling into new products such as cups, textiles, carpet, auto parts, furniture and rope. In less than five years, the market value of the recovered polypropylene is expected to exceed DNR’s investment of \$24,999 in grant funds for this \$52,562 project^{xi}.



WCISWMA's addition of a baler for #5 plastic.

ⁱBased on an empty 18x13x5 shipping box pulled out of household recycling that weighed 10.4 ounces.

ⁱⁱCRI report created for Iowa DNR “2022 Recovery Rate Report” Table 2 shows 1.38 glass bottles per pound.

ⁱⁱⁱEPA’s GHG Equivalencies Calculator.

^{iv}<https://www.energy.gov/energy-earthshots-initiative>

^vBased on LNI final report for the grant project that referenced results from the iTree calculator.

^{vi}Same as entry above.

^{vii}Based on calculation from data in the 2024 Iowa Recycling Facility Study.

^{viii}EPA’s GHG Equivalencies Calculator.

^{ix}EPA’s GHG Equivalencies Calculator.

^xBased on an empty 16-ounce #5 container for fresh salsa pulled out of household recycling that weighed 0.85 ounces.

^{xi}Based on market value of \$341/ton from Table 24 in the 2022 Iowa Landfill Material Analysis and projecting modest increases in recovered tons with stable values.

