HENNEPIN COUNTY
MINNESOTA

Community Recycling Ambassador course manual

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Introduction

Welcome to the Community Recycling Ambassador (CRA) program. As a CRA, you will play an important role in preventing and reducing waste, increasing recycling and composting, and conserving resources in Hennepin County.

Waste reduction, reuse, recycling, and composting help reduce greenhouse gas emissions, conserve energy and natural resources, create jobs and economic development opportunities, and protect our environment and quality of life. Although we have made some progress in diverting waste, many recoverable resources are still being sent to waste-to-energy facilities and landfills, and the recycling and organics recycling rate has only increased slightly over the past decade.

Through the CRA program, participants learn about waste prevention, reuse, recycling, composting, community engagement, and behavior change. They then implement programs that prevent waste, increase recycling, and engage others in learning about these issues. This approach is critical to effectively changing behaviors and motivating environmental protection.

Bridging the awareness-action gap

Most people know they should reduce, reuse, and recycle to protect the environment, but what people think they should do is not always what they do. In fact, research demonstrates that just giving people information has little or no effect on their behavior. So if brochures won't change behavior, what will? Research reveals that personal contact paired with specific information and resources that address barriers to reducing waste is a powerful way to inspire action.

CRAs bridge the gap between awareness and action by motivating their friends, family, co-workers, and communities to reduce waste in their homes and workplaces. As a trained CRA volunteer, you will inspire people to change the way they think about and manage their consumer choices and their waste.

Program basics

The CRA program consists of two stages: formal training and public outreach. Participants attend about 12 hours of classroom instruction and then volunteer at least 30 hours implementing programs and doing outreach in their community.

The training program consists of classroom sessions and a field trip, when available. Classroom activities include visual presentations and group discussions. During the field trip, participants tour recycling and composting facilities.

When you agree to become a CRA, you make a commitment to volunteer, or "pay back," 30 hours through community outreach or waste reduction projects. Once you fulfill this commitment, you will become a certified CRA.

Your payback involves implementing a system or program that eliminates or diverts materials from the waste stream and/or providing direct community outreach to educate and inspire others to practice waste reduction.

Payback activities may be individual projects created by you and/or fellow CRAs that are approved by the program coordinator, or activities completed by volunteering with other organizations. Activities may also be organized by the program coordinator and could involve working with other volunteers and local education and solid waste programs. You can be notified of payback opportunities by joining the Facebook group or getting on the email list. Learn how at **hennepin.us/recycling-ambassadors**. CRAs are also encouraged to seek out and create payback opportunities that interest them and serve their communities' unique needs.

However you choose to participate in the program, your contributions are an important part of a larger movement to protect our natural resources.

The program manual

This manual is provided to supplement class content, reinforce key messages, and supply resources for outreach and education. Each week, you should pre-read the chapter or chapters that will be discussed in the next class.

Once you've completed the course, your manual will be your reference tool to help you develop outreach and education projects. Whether you staff an information table, give a presentation, or work on a project, your manual provides key messages and facts, common vocabulary used in the field, and information on the resources available to you.

Samples of Hennepin County factsheets, brochures and handouts are included as part of your training materials and can be ordered for free at **hennepin.us/environmentaleducation**.

This program is designed to empower you with the training and tools you need to educate your community on waste reduction, recycling and composting. As a CRA in training, you are encouraged to ask questions, share your experiences and provide feedback on the program.

Chapter 1 | Solid Waste Management

A brief history of waste and landfills

When the majority of people lived in rural areas, their waste, which consisted almost entirely of organic materials derived from plants, humans, and animals, was burned for fuel, used as crop fertilizers, or fed to livestock. These types of waste management strategies are still practiced in some areas of the world.

As civilization developed and populations concentrated in towns and cities, throwing waste out the door to animals or into the garden posed public health problems.

Some cities, notably in parts of Asia, solved their waste problem by hauling organic waste out to farms and composting it to revitalize crop lands. Another method was to take waste out to the countryside and dump it in piles. Around 500 B.C., Athens issued the first-known law against throwing waste in the streets, requiring it to be dumped no less than one mile outside the city walls. The open dump was born.

Included in this chapter

- Minnesota's waste management hierarchy
- What do we throw away?
- Collection
- Transfer
- Disposal
- Solid waste planning and policy

Minnesota's waste management history

Prior to the 1960s, most waste was disposed of in open or burning dumps located throughout Minnesota. All waste types were allowed at these sites. The Minnesota Department of Health was given legislative authority over dumps located in tourist camps, summer hotels, and resorts. Cities, villages, or townships maintained regulatory control and responsibility over all other dumpsites.

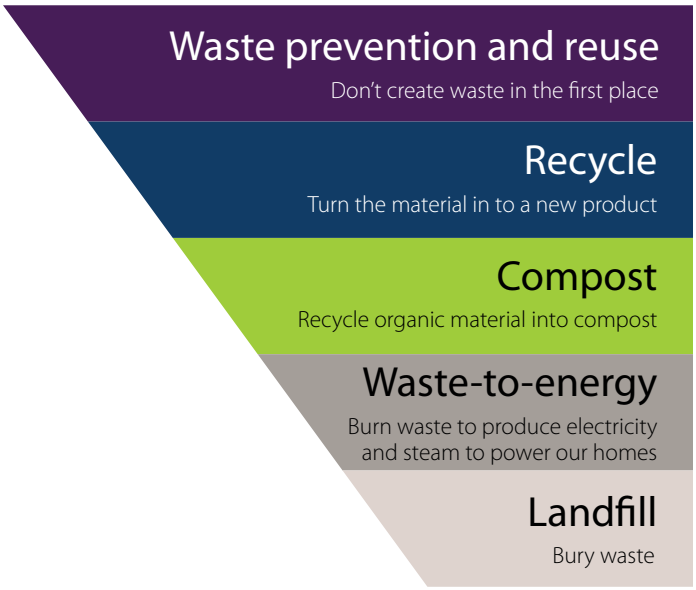
At the time, waste composition was vastly different, and the volume of household wastes was much smaller. Reuse was the norm; containers were made of glass or tin, and food was bought fresh or grown and processed at home. Junk mail and plastic packaging didn't exist. People were, in general, much more frugal. Two world wars and the Great Depression made people more conscious about saving and reusing items as much as they could. Many people went to dumps to scavenge for reusable materials and goods. In northern Minnesota, dumps even served as a social gathering place for activities such as shooting rats and watching bears.

Land use concerns grew as urban areas started to expand. New dumps became harder to site because fewer people were willing to have dumps near their properties. The Legislature passed the Federal Solid Waste Disposal Act in 1965. Two years later, the State of Minnesota created the Minnesota Pollution Control Agency (MPCA) to monitor and regulate air, water, and land pollution. In 1969, the Minnesota Solid Waste Act, which granted oversight of solid waste management to the MPCA, was passed. The act prohibited open burning, established a solid waste permitting process, and emphasized upgrading dumps to sanitary landfills.

During the 1970s, concerns over pollution from landfill sites led to the emergence of regulations for hazardous waste disposal and groundwater protection at landfill sites. These regulations would evolve over the next several decades.

Counties, with oversight from the MPCA, were given responsibility for local solid waste management and were required to submit solid waste management plans to the state. The composition of waste was changing rapidly and now included processed food, plastic packaging, and disposable diapers.

Passed in 1980, the Minnesota Waste Management Act established a waste management hierarchy. The hierarchy prioritizes waste reduction and reuse, recycling, composting, and resource recovery over land disposal. The act also created a landfill siting process and required solid waste abatement planning for metropolitan counties.



The Minnesota Waste Management Act mandates a two-fold strategy:

- Pursue the highest methods of solid waste abatement through source reduction, recycling, organics recovery and resource recovery.
- Minimize the use of landfills and ensure landfills are environmentally sound.

This strategy has helped Hennepin County achieve a recycling rate of approximately 45 percent, supported resource recovery facilities that use solid waste to generate energy, encouraged the implementation of organics recycling programs and the development of composting sites, and introduced source reduction, toxicity reduction, and public awareness activities.

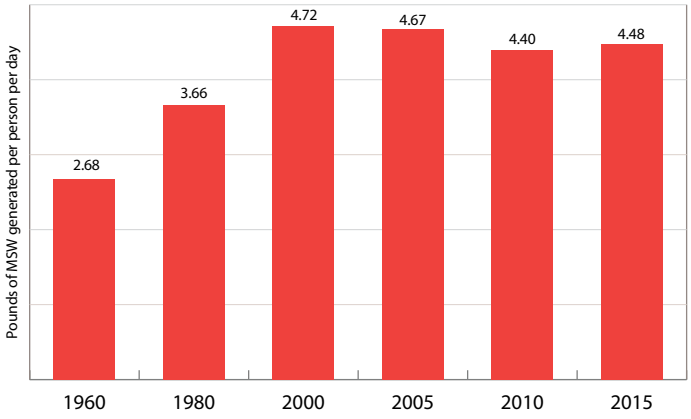
Yet the work is far from over. There is ample opportunity to shift more materials to top of the state's waste management hierarchy by emphasizing waste prevention, recycling and composting.

What do we throw away?

Municipal solid waste (MSW) includes everything we dispose of, including everything we recycle, put in the trash, bring to a household hazardous waste facility, etc. MSW consists of everyday items we use and then throw away. This includes appliances, batteries, bottles, cans, clothing, food scraps, furniture, newspapers, paint, product packaging and much more. MSW is waste that comes from homes, schools, businesses, and public spaces.

In 1960, total MSW generation in the U.S. was 88 million tons. This amount has steadily increased since. In 2015, Americans generated about 262 million tons of MSW, or about 4.5 pounds of waste per person per day.

U.S. MSW generation rate per person

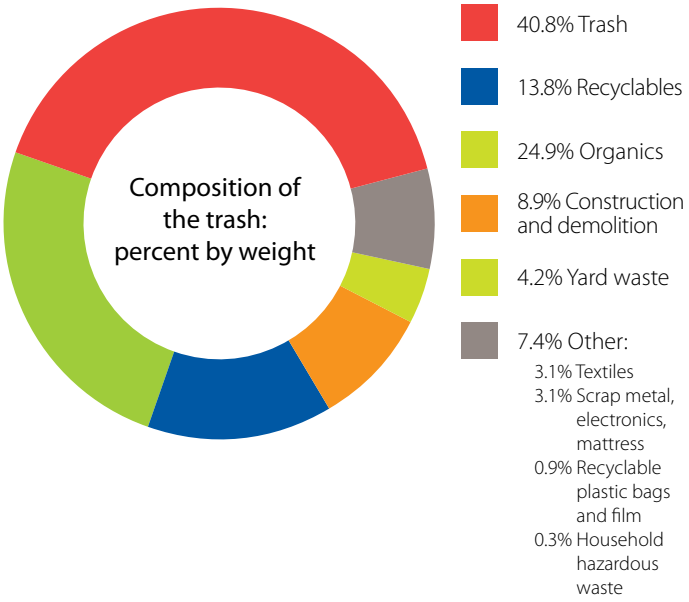


Of those 262 million tons of MSW, more than 91 million tons were recycled or composted. The national recovery rate for recycling, which includes composting, was 34.7 percent.

Hennepin County has a recycling rate that is higher than the national average. In 2022, 43 percent of waste generated in the county was either recycled or composted. Of the trash left, 28 percent was send to resource recovery/ waste-to-energy facilities, and 29 percent was sent to landfills.

A 2016 waste composition study examined the composition of trash in Hennepin County. This reflects only what has been thrown in the trash; not what has already been diverted for recycling or composting.

Hennepin County MSW Composition in 2016



As shown, there are opportunities to increase both recycling and composting. Especially of food waste and other organic waste, which is the most prevalent material in the trash that could be diverted – representing about 25 percent of the trash by weight.

Collection

The Twin Cities solid waste infrastructure is made up of private and public entities that collect, transport, recycle, recover, and land-dispose of the materials generated at homes, businesses, and institutions. Hennepin County licenses nearly 200 waste-hauling businesses to collect and transport MSW. Waste haulers that collect and transport non-MSW, recycling, or organic waste are not licensed. State law requires waste haulers to provide volume-based service, meaning rates are set based on the amount of waste set out for collection.

Most Twin Cities communities allow residents and businesses to choose their waste hauler. This is referred to as open collection. Some cities, such as Minneapolis, arrange for the service by contract or provide their own service. This is referred to as organized collection. Communities with organized collection represent 48 percent of the households in Hennepin County (although most multifamily residences in these cities are not included in these services). There are no organized collection arrangements for commercial waste, although some communities give small businesses access to organized collection services.

Transfer and disposal

In Hennepin County, waste is either hauled directly to the Hennepin Energy Recovery Center (HERC) or a land disposal facility. Waste may also be taken to a transfer station where waste is loaded into trailer trucks and transported to landfills farther away. In the Twin Cities, there are 19 transfer stations; 14 are licensed to accept MSW and five to accept only construction and demolition (C&D) waste.

The Hennepin Energy Recovery Center (HERC) in downtown Minneapolis.

Only one transfer station is publicly owned – the Hennepin County Transfer Station in Brooklyn Park. The remaining are privately owned. Transfer stations allow waste haulers to spend more time picking up waste rather than traveling long distances to dump their loads at the landfill. Four to five waste truckloads can fit into one transfer trailer, reducing traffic to and from the landfill, saving energy, time, and money.

A transfer trailer at the Hennepin County Transfer Station in Brooklyn Park can haul four to five waste truckloads.

The Hennepin County Transfer Station in Brooklyn Park also accepts household hazardous waste and provides free drop-off facilities for recyclables and residential organics.

Disposal

Resource recovery

The Hennepin Energy Recovery Center (HERC) is a waste-to-energy facility in Minneapolis that uses mass-burn technology to generate energy. At HERC, waste is burned to produce high-pressure steam that turns a turbine to generate electricity. A portion of the steam is diverted to provide steam for heating and hot water to the downtown Minneapolis district energy system and Target Field.

Each year more than 16,000 tons of ferrous metal are recovered from the waste stream at HERC and recycled. This is almost double the 6,500 tons of ferrous metal collected annually in curbside and drop-off recycling programs in Hennepin County.

The state permits HERC to process up to 365,000 tons of waste per year. HERC generates enough electricity to power 25,000 homes each year.

Landfills

In 2017, 19 percent of MSW generated in Hennepin County was land disposed in the eight landfills shown below. Most of the waste was landfilled in the metro area.

Landfill	Tons	Location	Owner
Pine Bend	124,861	Inver Grove Heights, MN	Republic
Spruce Ridge	2,614	Glencoe, MN	Waste Management
Burnsville	84,920	Burnsville, MN	Waste Management
Elk River	20,078	Elk River, MN	Waste Management
Nobles County	108	Rushmore, MN	Nobles County
Superior 7-mile	44,807	Eau Claire, WI	Advanced Disposal
Timberline	476	Weyerhaeuser, WI	Waste Management
Lake Area Landfill	2,116	Sarona, WI	Republic
Total	**279,980**		

Solid waste planning and policy

Solid waste management policy plan

In 2024, the Minnesota Pollution Control Agency (MPCA) approved its new state solid waste management policy plan to set objectives for 2028 and establish a framework for meeting the statutory goal to recycle 75 percent by 2030. State statute requires metropolitan counties to prepare master plans every six years that identify strategies to meet the recycling goals and objectives in the state's Metropolitan Solid Waste Management Policy Plan. The county's plan was adopted by the Hennepin County Board of Commissioners and submitted to the MPCA on October 29, 2024.

Hennepin County developed its 2024 Solid Waste Management Master Plan to reach the goal of recycling 75 percent of waste by 2030. View the Hennepin County Solid Waste Management Plan at **hennepin.us/solidwasteplanning**.

Municipal responsibility

Hennepin County Ordinance 13 requires municipalities to adopt local laws relating to the separation of recyclables from waste. Hennepin County's Residential Recycling Funding Policy facilitates the transfer of Select Committee on Recycling and the Environment (SCORE) funds, which the county receives from the state, to municipalities. These funds support curbside recycling and organics recycling programs.

Private sector responsibility

Individuals and businesses are expected to follow the state, county, and municipal laws and regulations and participate in waste management programs. Generally, the public sector relies on the private waste management industry to provide waste management services, including waste and recycling collection, disposal of ash and residues, and handling of problem materials and hazardous wastes.

Hennepin County solid waste management programs and initiatives

Hennepin County has a growing number of programs and initiatives that help cities, residents, organizations, and businesses reduce waste and increase waste diversion. An overview of these programs and initiatives can be found in the county's annual Recycling Progress Report, available at **hennepin.us/solidwasteplanning**.

Resources

The following resources provide more information about solid waste management in Hennepin County and throughout Minnesota.

- **hennepin.us/solidwasteplanning:** Information about how waste is managed in the county and the solid waste planning process.
- **hennepin.us/HERC:** Information about the Hennepin Energy Recovery Center, the county-owned waste-to-energy facility.
- **revisor.mn.gov/rules/7035/:** The Minnesota Waste Management Act on the Minnesota Office of the Revisor of Statutes website.

Chapter 2 | The Recycling Process

Why recycle? Energy, economy and environment: the three Es

The benefits of recycling are vast. By choosing to recycle, we reduce our consumption of fossil fuels, create jobs in Minnesota, conserve natural resources, and protect our environment.

Recycling saves energy

Manufacturing products from recycled materials uses far less energy than manufacturing the same product from raw materials. It takes 90 percent less energy to manufacture an aluminum can from recycled aluminum, 50 percent less energy to manufacture a glass bottle from recycled glass, and 75 percent less energy to manufacture paper from recycled paper. Recycling decreases demand on fossil fuels and increases energy independence.

Included in this chapter

- Why Recycle?
- The Recycling Process
  - Source Separation
  - Collection
  - Materials prep and contamination
  - Materials processing
  - Manufacturing and marketing recycled-content products
- Barriers to recycling
- Residential recycling
- Support recycling by recycling right
- Plastics deep dive
- Product stewardship

Recycling benefits the economy

Recycling helps support local and statewide markets. About 78,000 jobs in Minnesota are directly and indirectly supported by the recycling industry. These jobs pay an estimated $7.96 billion in wages and add nearly $23.9 billion to Minnesota's economy.

Recycled materials are manufactured into a variety of products, from recycled-content paper to new aluminum cans to building supplies, and are used by many Minnesota companies.

The largest segment of the recycling industry is made up of manufacturers that use recycled paper, post-consumer paper and old corrugated cardboard (OCC) as a raw

material source. Westrock in St. Paul and Liberty Paper in Becker are major companies in Minnesota using this feedstock. Much of the recycled paper and OCC they use to make new products come from Minnesota recyclers.

Additionally, recyclable material has tremendous economic value. Minnesotans recycle about 1.78 million tons of materials every year that are worth $344 million.

Recycling protects our environment

By reducing energy use, recycling decreases greenhouse gas emissions and reduces Minnesota's carbon footprint. Recycling also has indirect benefits to climate change. For example, paper recycling mitigates the removal of mature trees. A single tree can filter up to 60 pounds of pollutants and carbon dioxide out of the air each year.

Recycling and buying recycled products also helps keep Minnesota's air and water clean. Using recycled materials to manufacture products creates significantly less water pollution than manufacturing from raw materials. For example, making white office paper from recycled paper creates 74 percent less air pollution and 35 percent less water pollution than making it from virgin wood pulp.

And beyond reducing pollution, making products out of recycled materials conserves natural resources such as water and timber.

The recycling process

Understanding recycling processes is an important part of advocating for recycling. Recycling involves much more than taking a bin of materials out to the curb. Successful recycling depends on the alignment several steps: source separation and collection; processing, marketing, remanufacturing; and finally, and the purchase of recycled-content products.

Photo credit: Republic Services

Source separation and collection

Typically, raw materials are made into products that we consume and then throw away when we finish using them. This linear process – from extraction of raw materials to production to consumption and finally disposal – creates waste.

Separating recyclable materials from other wastes at the point of disposal is called source separation This is the start of the recycling process.

In Hennepin County, there are several methods for collecting recyclable materials once they have been source-separated.

Curbside collection

In curbside collection, recyclable materials are picked up from homes and businesses at the site of generation. This method captures the most recyclable materials because it's convenient and more accessible.

In Hennepin County, all communities provide curbside recycling collection to single-family households and residential buildings with up to four units. Depending on the community and waste hauler, residents and businesses in Hennepin County have collection containers for recyclables, yard waste and organics (food and food-soiled paper).

Communities use a variety of methods to provide curbside collection to their residents. Most cities contract with a recycling hauler. A few use city crews to collect materials, and a few require licensed waste haulers to provide recycling to their customers.

Residential curbside recycling programs in Hennepin County are single-sort. In a single-sort, or commingled system, all materials (paper, glass, metal and plastic) can be placed into the same collection container. Outside Hennepin County, some communities offer dual-sort collection where paper is kept separate from metal, plastic and glass. Most residential recycling programs in the Twin Cities are single-sort.

By state statute, materials that are properly sorted for recycling cannot be collected for disposal. For this reason, communities and haulers are careful in deciding which materials belong in a curbside program. A material may be technically recyclable but not appropriate for curbside collection.

Some considerations that determine which materials are eligible for curbside pickup include:

- Stable markets to ensure indefinite recycling;
- The availability of hauling and sorting machinery necessary to collect and separate the material from other materials;
- Publicly accessible and understandable instructions for recycling the material.

Multifamily housing and business recycling

Recycling service to multifamily properties, including apartment buildings, condos and townhouses, and businesses differs from single-family households. Property owners and commercial businesses contract with private waste haulers for recycling service.

Hennepin County communities passed ordinances in the early 1990s that required owners of multifamily housing properties to provide the opportunity to recycle to their tenants. Some communities also mandate that businesses subscribe to recycling collection. Additionally, a state requirement went into effect in 2016 mandating that all businesses and multifamily properties that generate four yards of waste or more per week have recycling service.

Recycling drop-off collections

Recycling is also collected at drop-off locations. Drop-off collection sites include retail stores, community centers, schools, and government facilities. Materials collected at drop-off sites include plastic bags, yard waste, mattresses, printer cartridges, electronic waste, tires, and other materials not typically accepted by curbside. .

Some sites, including the county's drop-off facilities in Bloomington and Brooklyn Park, also collect the same materials that are included in curbside collection programs.

Drop-off collection sites may charge a fee for materials that are costly to recycle.

Drop-off collection containers to recycle plastic bags and wrap are available at many grocery and retail stores.

Buy-back centers

Buy-back centers collect and pay for high-value materials such as aluminum cans, scrap metal, and cardboard. In addition, buy-back centers may also accept, but not pay for, low-value materials such as glass or newspaper.

Community cleanup events

Community cleanup events are one-day or weekend events that allow residents to drop off materials for recycling or safe disposal. These events are typically focused on household garbage, but many also accept recyclable materials that are not collected curbside.

Material preparation and contamination

Successful recycling requires participants to understand what materials are accepted and how to properly prepare them. Proper participation of materials ensures that they will go to the markets for which they were intended and be successfully recycled.

Recyclable materials that contain other non-recyclable materials are referred to as "contamination." A good example of contamination is recyclables that are soiled with food.

Contamination also refers to materials that end up in the wrong stream. For example, shredded paper at recycling facilities is often too small to get sorted into the paper stream and ends up as contamination in the glass stream.

Too much contamination in the recycling stream may result in those materials being disposed of as trash instead.

Material processing

After collection, recyclables are sorted, processed, and sold to end users or manufacturers to be used in new products. Recycling would not be possible without markets that need those materials for manufacturing.

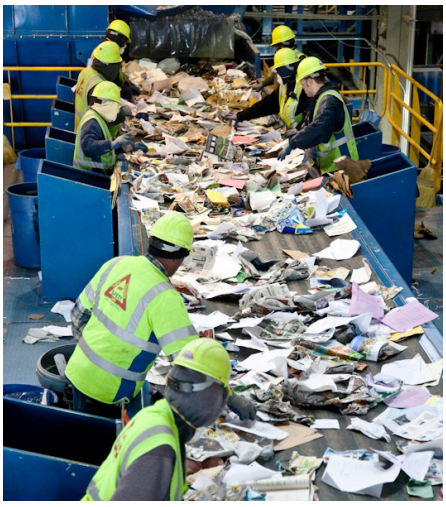
Recyclable materials collected from homes, apartments, and businesses are taken to materials recovery facilities (MRFs, pronounced murfs) to be sorted into material types. In Hennepin County, MRFs are privately owned by haulers. Three MRFs operate in the county. These are owned by Eureka Recycling, Republic Services, and Waste Management. There are several more MRFs located throughout the Twin Cities, some of which receive material from Hennepin County residents and businesses.

At the MRF, recycled materials are sorted and graded, contaminants are removed, and materials are prepared for markets. Recyclables at the MRF travel along a series of conveyor belts where various methods are used to sort them.

Mechanical processes take advantage of the physical differences among materials. For example, magnets grab steel items, electric currents kick out aluminum, optical sorters and air jets detect paper and plastic, and screens separate glass by weight.

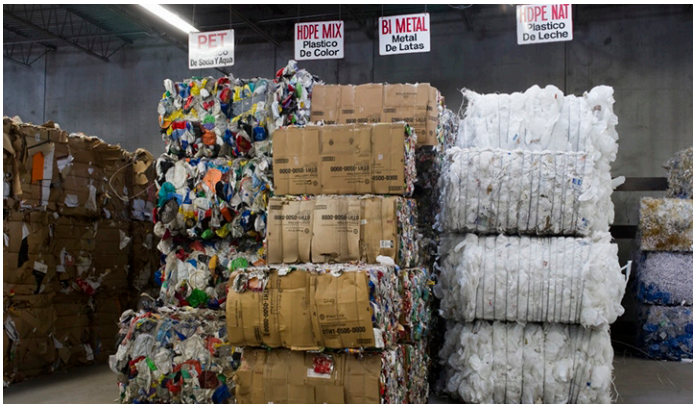
People also work on the line to hand-pick items that the machines miss, such as milk jugs and phone books.

Sorting removes contaminants that lower the value of the materials and damage processing equipment.



After sorting, recyclables are graded to reclaim higher value materials. For example, high-quality office paper and cardboard may be pulled from a mixed-paper pile of junk mail and magazines. This maximizes the revenue from the sale of materials in commodity markets. Glass may be separated by color so it can be remanufactured into clear, green, and brown bottles.

Once sorted and graded, materials are baled or otherwise condensed for transport to market. Glass is usually crushed into small pieces called cullet, while metals, paper, and plastics are baled.



The separation of commingled material is not a perfect process. Machines and workers rapidly separate materials, and as a result, the wrong materials may be baled together and end up at a processing facility. These materials, whether recyclable or waste, are considered residuals and are typically sent to a landfill. Residual rates at the MRFs serving Hennepin County are under 10 percent.

Manufacturing and marketing recycled-content products

The final steps in the recycling process are to make new products and convince individuals, businesses, and governments to purchase them.

Recycled materials compete against virgin materials, often in worldwide markets. As a result, the economics of using recycled materials can change based on virgin commodity prices. For example, if wood chips are readily and cheaply available, prices for recycled paper pulp might be low.

The volume of material available also affects manufacturers' willingness to pay. For example, when many communities began newspaper and cardboard recycling simultaneously, prices fell because the supply of recyclable material became so large. Alternatively, if too little material is available, no business will be interested in investing in the manufacturing capacity to use it.

The following provides a brief overview of the manufacturing processes for common recycled materials.

Office paper

Some office paper is used to make 100-percent recycled paper. However, most of it is mixed with virgin fiber to make a variety of products, including book covers, egg cartons, game boards, gift boxes, matches, napkins, paper towels, and toilet paper.

At a mill, used paper is mixed with water and heated in vats to break down the fibers and turn it into pulp. The pulp may be forced through a series of screens to remove contaminants such as paper clips, staples and plastic tape.

It then goes through a series of tanks, centrifugal cleaners, and water washes. Washing, bleaching, and de-inking is necessary to produce white paper.

The watery pulp is spread over rotating screens, pressed, and dried to form paper.

Paper fibers can be recycled five to seven times before the fibers are too short to be useful.

Newspaper

The process for recycling newspaper is similar to office paper. It is repulped, mixed with virgin fibers, and rolled into new paper. Newspaper is made into new newsprint, egg cartons, paperboard boxes, such as cereal or cracker boxes, or boxboard for shoe boxes.

Corrugated cardboard

Corrugated refers to brown cardboard with a ribbed layer between the flat pieces. At recycling sorting facilities, corrugated cardboard and kraft (brown paper) bags are baled together for processing.

These materials are mixed with wood-chip fiber. They are most commonly made into the middle layer for new cardboard. Some may be used in outside layers of cardboard, kraft bags or boxboard.

Mixed paper

Mixed paper is what is left after higher grades of paper have been separated out. It primarily consists of recycling mail and paperboard boxes. It is recycled into the middle layer of corrugated cardboard and into boxboard.

Cartons

Cartons that held refrigerated foods (such as milk, juice, and cream) contain valuable, high-grade white paper sandwiched between layers of polyethylene plastic. Refrigerated cartons contain about 80 percent paper and 20 percent polyethylene.

Cartons that held food stored in the cupboard (such as broth, juice and wine) contain high-grade paper sandwiched between a layer of polyethylene plastic on the outside and a thin layer of aluminum on the inside. These cartons contain on average 74 percent paper, 22 percent polyethylene, and 4 percent aluminum.

The pulping process at a paper mill separates the plastic and aluminum foil from the paper. It is then recycled as high-grade office paper.

Glass

Refilling and reusing glass beverage containers was once the norm in the U.S. This practice has nearly vanished 1970s due to transportation costs, consolidation of the bottling industry, and the rise of competing containers made of plastic, aluminum, and non-refillable "one-way" glass.

Glass is easily recycled into new glass, and recycling glass remains more energy-efficient than manufacturing it from raw materials. If glass is not sorted by color, new glass will be amber or brown.

Glass cullet is also recycled into abrasive construction aggregate, fiberglass insulation, floor tile, fractionator for striking matches on matchboxes, pipe bedding, reflective pain, and septic filtration medium.

Tin (steel)

The steel in cans is coated with a thin layer of tin. Cans are soaked in a chemical bath to remove the tin. The steel is sent to a mill for reprocessing into ingots and are made into new food and beverage cans.

Steel cans can be recycled without detinning, but this process produces more air pollution because the tin is burned off.

Aluminum

Aluminum is one of the most highly recycled materials in the world because it saves a lot of energy. Making a can from virgin bauxite ore take 20 times as much energy as making a can from recycled aluminum. Aluminum cans can be collected, recycled and back on store shelves within 90 days.

Plastics

Because people are adamant about recycling plastics, many markets for manufacturing recycled plastics have developed even though new plastic is cheap.

Plastics are recycled into many new products, including bottles, carpet, handbags, plastic lumber, pipe, T-shirts, and fleece clothing.

Electronics



Computers, monitors, televisions, cell phones and other household electronics contain heavy metals and other materials that are hazardous to human health and the environment if they are not properly managed. Hazardous components of electronics include lead, cadmium, and mercury. Recycling is especially important for computers and cell phones, which contain rare earth metals whose mining process requires extensive use of toxic chemicals.

Electronics are accepted from residents at Hennepin County drop-off facilities in Bloomington and Brooklyn Park. Some retailers also accept electronics for recycling.

Electronics are broken into various components, including leaded glass in CRTs, circuit boards, plastics, scrap metal, and liquid-crystal displays (LCDs). Different methods and markets are needed to recycle and remanufacture the various components.

Buying recycled

The recycling loop can only be completed when we purchase products containing recycled content. But people often don't think twice about whether a fleece garment or an aluminum can is made of recycled material. So how do markets for recycled- content products develop?

Compared with the 1990s, many recycled-content products are now mainstream. In one example, government leadership in purchasing recycled-content paper helped develop markets for recycled paper, and now recycled paper can easily be found in stores.

Costs for recycled-content products decrease with economies of scale as recycled materials move beyond niche markets and become cost-effective alternatives to products made with virgin materials.

As consumers, we all play an important part in closing the loop. Our purchase of recycled-content products helps send a message to manufacturers that more of these products are wanted.

Barriers to recycling

Although many materials are theoretically recyclable, currently only glass, metal and paper are recycled to a significant extent. Plastics are recycled, but not as much as other materials.

Some key barriers that contribute to low recycling rates include unfavorable tax laws, weak markets, inexpensive solid waste disposal, inadequate infrastructure and technology, poor economics of commercial recycling, and public awareness and consumption habits. The following provides a summary of these key barriers.

Weak markets

Sustaining a recycling business is difficult without strong, stable markets for recycled materials. In order to support a recycling business, expanded or new manufacturing facilities are needed to convert recyclable materials into useful items, a stable inflow of recyclables is needed to support the investment costs, and consumer demand is needed for sale of the products.

For some materials, such as tires, colored glass and certain plastics, markets are few. Volatile prices for materials, including paper and plastics, also affect recycling.

Public awareness and consumption habits

Changing throw-away habits continues to be one of Hennepin County's central challenges to increasing recycling programs. Continued outreach, promotion and education are necessary to maintain and increase recycling rates.

Virgin material subsidies

Some federal tax laws favor raw materials over recycled materials. Depletion allowances created in the past to encourage oil and mineral development continue to subsidize resource extraction. Investment tax credits apply to equipment that converts or refines virgin resources into products, but not to equipment that processes recycled materials. Tariffs and transportation fees have also favored raw materials over recycled materials. Some policies are changing as government agencies sponsor market development programs for recycled materials, education programs to promote recycling, and subsidized collection of recyclable materials.

Recycling in the Home

All communities in Hennepin County accept the same basic list of materials for recycling. This includes:

- Boxboard (cereal, cake mixes and pasta boxes, shoe boxes, electronic and gift boxes, boxes from toothpaste and medications, etc.)
- Corrugated cardboard
- Glass food and beverage containers
- Magazines and catalogs
- Metal food and beverage cans
- Milk cartons and juice boxes
- Mixed paper, including mail, school, and office papers
- Newspaper and supplements
- Plastic bottles, containers and lids, #1, 2, and 5

Cities and haulers may accept additional materials beyond the basic list in their recycling programs.

Preparing recycling

Properly preparing recycling is important to ensure the materials get recycled. Here are tips for preparing various materials:

- **Cardboard:** Flatten and put into cart or bin. Some cities will allow larger amounts of cardboard to be placed alongside recycling carts.
- **Magazines:** Include everything that comes with the magazine except rubber bands and plastic bags.
- **Metal cans:** Include all aluminum and tin/steel food cans. Place metal lids and bottle caps inside metal cans and pinch shut. Rinse clean and put into cart or bin.
- **Mixed paper:** Mixed paper includes unwanted mail, envelopes, greeting cards, paper tubes, and cereal boxes. Do not include: bath tissue paper, paper towels, or paper products such as plates and cups.
- **Newspaper:** Include everything that comes with the paper except rubber bands and plastic bags.
- **Plastic bottles and containers:** Rinse the container clean and toss into the bin or cart. Leave caps on bottles. If the bottle has a plastic label wrapped around the entire bottle, remove it. Do not recycle bottles or containers that have come into contact with motor oil, pesticides, herbicides or other hazardous wastes.

Put recyclables loose into your recycling cart. You should never put your recycling into plastic bags, and it's best to not use paper bags either. Plastic bags get tangled in the equipment at recycling facilities, causing the entire facility to be shut down while the bags are cut off of the equipment. Plus, the machines and people at the recycling facility cannot tell what's in the bag, meaning your recycling will likely not get recycled. Paper bags pose a similar issue – the machines at the recycling facility can't tell what's in the bag, so the recycling in the back won't get sorted properly.

Setting up a household recycling system

Place a separate bin or paper bag in rooms where a lot of recyclable items are used. For example, place a bin or bag for recycling in the kitchen, home office, laundry room and bathroom. When these bins get full, empty them into your recycling cart or bin.

Before emptying a waste basket from a bedroom or office, check to see if there are any recyclable items you can pull out and recycle instead.

When cleaning out your garage, refrigerator, basement, cabinets, and closets, make sure a recycling bin, box or paper bag is nearby for collecting recyclable items.

Recycling beyond the curb

Many people don't realize they can recycle more materials than are accepted at the curb, but it may require a special trip. There are many places in the metro region to bring materials for reuse or recycling. As a Community Recycling Ambassador, become familiar with the recyclers and reuse centers in the county and share them with people in the community.

Hennepin County has two year-round drop-off facilities where residents can take recyclable materials not accepted curbside. Materials residents can drop off include batteries, electronics, organics, electronic media, mattresses, plastic bags, and scrap metal. There are also drop-off containers at libraries and city halls for batteries, and many retailers and grocery stores take plastic bags for recycling.

For information on locations, hours, materials accepted and fees, see the Drop-off Facilities Brochure or visit **hennepin.us/dropoffs**. For more information on a specific item, visit the Green Disposal Guide at **hennepin.us/greendisposalguide**.

Support recycling by recycling right

Recycling has changed in recent years due to shifts in markets and national and international policy changes. Recyclers have changed their focus from wanting more materials to wanting the right materials so that recycling streams that are high quality and don't contain a lot of contamination.

The best way to support recycling is to recycle right by making sure you know what does and does not go in your recycling cart.

Some of the most important materials to keep out of your recycling cart are:

- Plastic bags and wrap: These get tangled in equipment at recycling centers. Bring them to a retail drop-off location for recycling, avoid by finding reusable alternatives, or put them in the trash.
- Cords, hoses and string lights: These get tangled in the equipment at recycling centers. Recycle cords and string lights at a drop-off location or put these items in the trash.
- Paper cups and plates: These items are often lined with plastic or contaminated with food. Avoid by carrying reusable water bottles and mugs and by choosing reusable or compostable alternatives. Put paper cups and plates in the trash.
- Plastic utensils and straws: There aren't good recycling markets for these items, and they are too small to sort at recycling facilities. Avoid by carrying reusable utensils and straws with you, refuse straws when you can, use compostable alternatives, or put them in the trash.
- Plastic foam: There aren't good recycling markets for these items and transporting and sorting the material is difficult. Avoid by finding reusable, recyclable, or compostable alternatives, and put these items in the trash.

Plastics deep dive

Plastics are increasingly prevalent in our waste stream. In the U.S., plastics make up more than 12 percent of the municipal solid waste stream, which is a dramatic increase from from 1 percent in 1960

Plastics are most commonly used for containers and packaging, such as soft drink bottles, containers and lids, and shampoo bottles. Plastics are also used for durable items like appliances, furniture, and toys and non-durable items like cups, diapers, medical devices, trash bags, and utensils.

Recycling rate for plastics

In 2018 the overall recycling rate for plastics was only 8.79 percent. However, the recycling rate varies greatly for different types of plastics, and the recycling rate for some plastics is much higher. For example, in 2018, 29.1 percent of PET bottles and jars and 29.3 percent of HDPE #2 bottles were recycled.

The 2016 Hennepin County Waste Sort found the capture rate for recyclable plastics to be about 50 to 60 percent, meaning people are only recycling about half of the plastics they could be.

How plastics are made

Plastics can be divided into two major categories: thermosets and thermoplastics.

- A thermoset solidifies or "sets" irreversibly when heated. They are useful for their durability and strength and are therefore used primarily in automobiles and construction. Other uses are adhesives, inks, and coatings.
- A thermoplastic softens when exposed to heat and returns to original condition at room temperature. Thermoplastics can easily be shaped and molded into products such as milk jugs, floor coverings, credit cards, and carpet fibers.

Plastics recycling

According to the American Chemistry Council, about 1,800 U.S. businesses handle or reclaim post-consumer plastics. Plastics from municipal solid waste are usually collected from curbside recycling bins or drop-off sites. At MRFs, plastics are sorted into a broad category of mixed plastics, then further sorted by plastic type, baled and sent to a reclaiming facility.

At the facility, any trash or dirt is sorted out, and the plastic is washed and ground into small flakes. A floatation tank further separates contaminants based on their different densities. Flakes are then dried, melted, filtered, and formed into pellets. The pellets are shipped to product manufacturing plants, where they are made into new plastic products.

Plastic resin identification codes

The number you find on the bottom of plastic containers is called the resin identification code. In 1988, SPI, the plastics industry trade association, introduced the resin identification coding system.

The following are resin identification codes for plastics:

#1 Polyethylene terephthalate (PET or PETE)

#2 High density polyethylene (HDPE)

#3 Polyvinyl chloride (PVC or V)

#4 Low density polyethylene (LDPE)

#5 Polypropylene (PP)

#6 Polystyrene (PS)

#7 Any other plastic, including mixed resins and polylactic acid (PLA), which is derived from sources like corn starch or sugar cane. PLA is compostable in commercial facilities.

Recycling programs commonly accept plastic containers, and the SPI coding system offers a way to identify the resin content of bottles and containers commonly found in the residential waste stream. Plastic containers are usually marked with a number that indicates the type of plastic.

Contrary to common belief, the resin number in a triangle, which looks like the recycling symbol, on a plastic product does not mean it is collected for recycling. However, consumers familiar with resin codes accepted in their local recycling program can use this information to determine whether or not certain plastic types are accepted for recycling.

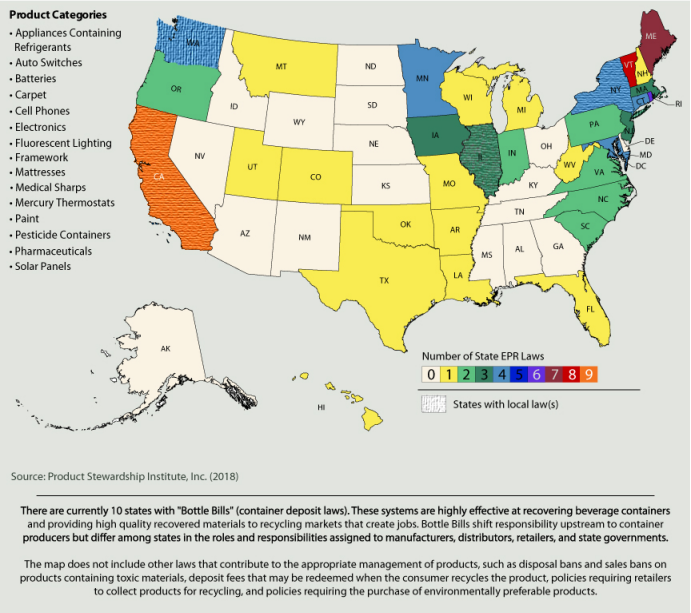
Type of plastic	How it's used	Recyclability
#1: Polyethylene terephthalate (PET or PETE)	• Bottles for water, soft drinks, juice, sports drinks, mouthwash, ketchup, beer, and salad dressings • Clamshell containers, such as for strawberries and lettuce • Food jars, such as peanut butter, jelly, jam, and pickles • Microwaveable food trays	PET is one of the most common resins. Most curbside programs accept this type of plastic. Black plastics are often not accepted for recycling. The optical sorters used at recycling facilities struggle to properly sort the black plastics. Black plastics are also commonly used for microwavable foods. These items have an additive that prevents them from melting in the microwave, which makes it difficult to recycle them.
#2 High density polyethylene (HDPE)	• Bottles for shampoo, dish and laundry detergent, and household cleaners • Cereal box liners • Juice concentrate and tofu containers • Milk jugs • Shopping bags • Shipping containers	Most curbside programs accept the bottle form of HDPE. Plastic bags are not accepted in curbside recycling programs because they get tangled in the equipment at recycling sorting facilities. Plastic bags can be recycled in drop-off containers available at many retail and grocery stores.
#3 Polyvinyl chloride (PVC or V)	• Bags for bedding, medical shrink wrap, deli and meat wrap • Blister packs • Clamshell containers • Pipes, siding, window frames, fencing, decking, and railing	PVC is not commonly accepted for recycling.
#4 Low density polyethylene (LDPE)	• Bags for dry cleaning, newspapers, bread, frozen foods, produce, and household garbage • Coating for paper milk cartons and beverage cups • Container lids • Shrink wrap and stretch film • Squeezable bottles	LPDE is commonly found as plastic film, which is not accepted in curbside recycling programs. Plastic bags and film are accepted for recycling in drop-off containers available at many retail and grocery stores.
#5 Polypropylene (PP)	• Takeout food containers • Yogurt and margarine tubs	Most curbside programs accept this type of plastic.
#6 Polystyrene (PS)	• CD cases • Coffee cup lids • Foam packaging • Foodservice items including bowls, cups, plates, and utensils • Packing peanuts • Takeout food containers	There aren't good recycling options for this type of plastic.
#7 Other (mixed resins, polylactic acid (PLA))	• Any plastic product that does not fit into resin categories 1 - 6 • Bio-based plastics made from corn, potato, or sugar derivatives • Large (three to five gallon) reusable water bottles • Oven-baking bags, barrier layers, and custom packaging • Some citrus juice and ketchup bottles	This is a broad category that includes a variety of plastics. Curbside programs don't accept this type of plastic. Bio-based plastics (such as polylactic acid, or PLA) can be composted in commercial composting facilities and are accepted in organics recycling programs. Generally, this plastic will not degrade in backyard compost.

Product stewardship

Product stewardship is a product-centered approach to environmental protection. Also known as extended producer responsibility (EPR), product stewardship calls on entities involved in a product's life cycle, including manufacturers, retailers, users, and disposers, to share responsibility for reducing the environmental impacts of products.

Product stewardship recognizes that product manufacturers must take on new responsibilities to reduce the environmental footprint of their products. However, real change cannot always be achieved by producers acting alone. Retailers, consumers, and the existing waste management infrastructure need to help to provide the most workable and cost-effective solutions. Solutions and roles will vary from one product system to another.

Product stewardship policies in the U.S. (2018)



Source: Product Stewardship Institute, Inc. (2018)

There are currently 10 states with "Bottle Bills" (container deposit laws). These systems are highly effective at recovering beverage containers and providing high quality recovered materials to recycling markets that create jobs. Bottle Bills shift responsibility upstream to container producers but differ among states in the roles and responsibilities assigned to manufacturers, distributors, retailers, and state governments.

The map does not include other laws that contribute to the appropriate management of products, such as disposal bans and sales bans on products containing toxic materials, deposit fees that may be redeemed when the consumer recycles the product, policies requiring retailers to collect products for recycling, and policies requiring the purchase of environmentally preferable products.

Product stewardship in Minnesota

In 1991, the State of Minnesota adopted one of the first product stewardship policies in the United States to promote a new approach to conserving resources, reducing waste, and increasing recycling. This approach led Minnesota to focus on developing policies and programs for specific priority materials including rechargeable batteries (1991), certain electronics (2007), paint (2013), mercury thermostats (2014), and packaging and paper products (2024).

Since 2019, over a dozen states have introduced legislation to establish extended producer responsibility (EPR) for packaging. The first four laws in the U.S. passed in Maine and Oregon in 2021 and in Colorado and California in 2022. In 2024, Minnesota became the fifth state to pass EPR for food packaging and paper products into law. The Packaging Waste and Cost Reduction Act requires producers - generally the brand owner, manufacturer, or importer - to appoint and join a 501(c)3 nonprofit organization called a producer responsibility organization (PRO), to coordinate and fund the statewide program. Packaging waste and printed paper now account for 40% of our waste stream. This program will cover up to 90% of the costs associated with recycling, refill, reuse, or composting of covered packaging and paper products.

The Partnership on Waste and Energy, a collaborative effort of Hennepin, Ramsey, and Washington counties, was a lead advocate in the bill development and supporting its passage. The law will prevent waste, increase recycling, and save Minnesotans millions of dollars. In addition to reducing the cost of recycling the law will also:

- Require packaging and paper products to be reusable, recyclable, or compostable by 2032.
- Simplify and standardize recycling across the state, including establishing a universal recycling list.

The next few years will be an exciting time of establishing the framework to implement this new law. To learn more about the law, visit **www.pca.state.mn.us/air-water-land-climate/extended-producer-responsibility-for-packaging**.

Why product stewardship?

Instituting product stewardship policies can help reduce loss of resources, ease rising costs to governments, and avoid potential hard from hazardous materials.

Treating waste as a resource has economic benefits. Minnesota spends a significant and growing amount of money to manage discarded products that cannot or should not be managed as garbage. Looking at discarded products as resources rather than waste has the potential to bring additional jobs, economic wealth, and tax revenue to the state.

Toxic materials continue to be a problem for our state. Materials used in some products continue to pose a threat to the health of our communities and the environment. For example, every pound of lead or mercury in a product has the potential to harm human health and the environment if it is not used and managed properly. Managing these materials in a responsible way means spending public taxes and fees on pollution control equipment or special disposal. By encouraging the redesign of products to remove problem materials, product stewardship can reduce the amount of public funding that needs to be spent on proper disposal.

Resources

- **hennepin.us/recycling**: Information about materials typically accepted in curbside programs and contact information for city recycling coordinators.
- **hennepin.us/apartmentsrecycle**: Information and free resources for property owners and residents to implement or improve recycling in multifamily buildings.
- **hennepin.us/businessrecycling:** Information and resources for reducing waste and recycling in a business.
- **hennepin.us/drop-offs:** Information about the county's drop-off facilities in Bloomington and Brooklyn Park, including locations, hours, facility guidelines and materials accepted.
- **hennepin.us/greendisposalguide:** The Hennepin County Green Disposal Guide provides recycling and disposal information for a wide variety of household items.
- **pca.state.mn.us/air-water-land-climate/recycling-in-minnesota**: The Minnesota Pollution Control Agency's website with information on the recycling process and economics in Minnesota.
- **pca.state.mn.us/air-water-land-climate/using-and-developing-products-responsibly**: Information about product stewardship in Minnesota.

Footnotes

[1] Most Plastic Products Release Estrogenic Chemicals: A Potential Health Problem That Can Be Solved, Chun Z. Yang, et.al, **http://ehp.niehs.nih.gov/1003220/**

[2] Widespread Occurrence of Bisphenol A in Paper and Paper Products: Implications for Human Exposure, Chunyang Liao and Kurunthachalam Kannan, **http://pubs.acs.org/doi/abs/10.1021/es202507f**

Chapter 3 | Food and Organic Waste

Food loss and waste

Every year, American consumers, businesses, and farms spend $218 billion a year, or 1.3 percent of the country's gross domestic product (GDP), growing, processing, transporting, and disposing food that is never eaten. That's 32.4 million tons of food sent to landfills annually. Of that, two-thirds is food that could have been eaten.

Food waste has increased significantly over the past few decades. As much as 40 percent of food produced in the U.S. for human consumption goes uneaten. That's like buying five bags of food at the grocery store and leaving two behind. ReFED estimated in 2017 that an average of 238 pounds of food goes to waste per person each year, costing a family of four more than $2,500.

Food waste represents the single largest component of the waste sent to landfills and waste-to-energy facilities. According to Hennepin County's 2016 waste sort, food is the largest proportion of our trash by far - comprising 19 percent of the trash by weight.

Included in this chapter

- Food loss and waste
- Reducing wasted food
- Food waste diversion and reuse
- What is compost?
- Composting at home
- Backyard composting
- Vermicomposting

The problem with wasted food

Wasted food is an environmental and social problem.

Environmentally, food disposed of in a landfill quickly rots and becomes a significant source of methane – a potent greenhouse gas. Landfills are the third largest source of methane emissions in the U.S., accounting for 16 percent of the methane emissions in 2016. Food waste also has the potential to create leachate when landfilled because of its high water content. As food waste decomposes in a landfill, water flows downward, picking up hazardous elements from other materials in the landfill. Issues arise when leachate escapes landfill containment and contaminates the surrounding soil and water.

The amount of food wasted in the U.S. is juxtaposed with issues of hunger and food insecurity. Every day, 980 million people go hungry in the world even though there is no shortage of food. In the U.S., 1 in 7 people don't have enough food.

Sources of wasted food

Food waste is categorized as either pre-consumer (such as food-prep waste) or post-consumer waste (such as leftover food or plate scrapings).

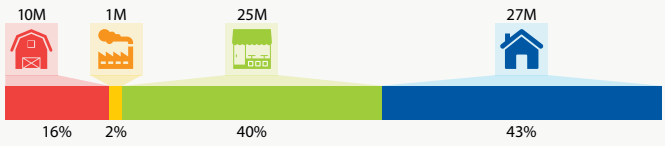
Food waste is generated from many sources:

- Food manufacturing and processing facilities
- Grocery stores and supermarkets
- Institutions, such as schools, prisons and hospitals
- Restaurants, food courts, and corporate cafeterias
- Households

As shown, most food waste is generated from households, followed by restaurants and grocery stores.

Food wasted by weight – 63 million tons

Waste occurs throughout the supply chain, with nearly 85% occuring downstream at consumer-facing businesses and homes.



According to the Natural Resources Defense Council, the reasons consumers waste food include:

- Lack of awareness and undervaluing of food
- Confusion over dates on labels and concerns for safety
- Impulse and bulk purchases
- Poor planning
- Cooking too much at once
- Forgetting about leftovers
- Large restaurant portions

Reducing wasted food

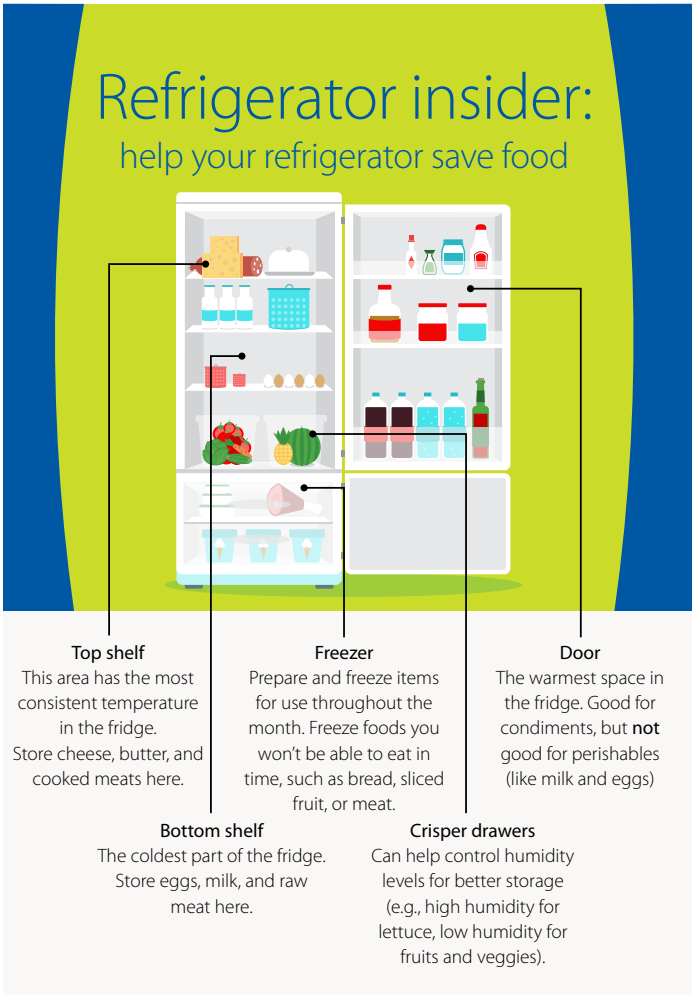
By paying attention and taking simple steps, businesses and households can significantly reduce the amount of food and money wasted every year. Here are some tips to reducing wasted food.

Practice meal planning and prepare meals at home

- Food made to take with you is usually highly processed and requires packaging. Preparing meals at home and bringing them with you in reusable containers offers more healthful and affordable choices.
- Shop your refrigerator first. Find recipes using ingredients you already have at home.
- Plan out meals for a week. Then make a shopping list.
- Create meals in batches. Freeze them for later use, in portion sizes that you can defrost later.
- Ask family members to compile their favorite recipes and share them with your entire family.
- Plan a leftovers night each week to eat everything up.

Learn how to store and preserve food

- Learn where to store items in your fridge to maximize the life of food. For example, the door is the warmest space in the fridge so it's good for condiments but not for milk or eggs; the bottom shelf is the coldest space, making it good for eggs, milk, and raw meat.
- Reorganize your fridge and put the older/more perishable food in the front and the newer/less perishable food in the back.
- Learn the best way to store fresh produce. Some produce does well in the fridge while other items should be kept on the counter or in a cool, dark place. And some produce shouldn't be stored together as it will spoil faster.
- Canning and freezing foods gives you access to local, seasonal food year-round.
- Freeze food that you may not be able to eat. Most foods, vegetables included, can easily be frozen and thawed when you're ready for them.



Understand food labeling

- The dates on food labels are not expiration dates, but merely suggestions as to when the product is at its freshest. The only federally regulated food labeling is on baby formula to ensure that the nutrient levels listed on the packaging are accurate until the expiration date.
- The grocery industry recently adopted voluntary standards to clear up what product date labels mean.
  - "Use by"– products with this label should be consumed by the date listed on the package.
  - "Best if used by" describes product quality. After that date, the product may not be at peak flavor, but is generally safe to consume.
- Use your sense of smell, sight and judgment to determine when food has gone bad. Don't eat foods that have developed an off odor, flavor or appearance.

Food waste diversion and reuse

For food and other organic waste that can't be prevented, there are many options for diverting it from landfills and waste-to-energy facilities.

Food-to-people

Non-perishable and unspoiled perishable food can be donated to local food banks, community kitchens, pantries, and shelters. Food-to-people programs are the highest form of reuse for edible organic materials. To encourage food donations, the federal Good Samaritan Law prevents usable food from going to waste and protects companies from liability surrounding their donations.

Food banks are community-based, professional organizations that collect food from a variety of sources and save the food in warehouses. The food bank then distributes the food to families and individuals through a variety of emergency food assistance

agencies, such as community kitchens, youth or senior centers, shelters, and pantries. Most food banks tend to collect less-perishable foods, such as canned goods, because they can be stored for a longer time.

Typical food bank donors include large manufacturers, supermarket chains, wholesalers, farmers, food brokers, and organized community food drives. Perishable and prepared foods are typically collected from restaurants, caterers, corporate dining rooms, hotels and other food establishments for prompt distribution to hungry people in their communities. Donated food includes unserved leftovers from events, products affected by labeling regulations or manufacturing glitches, expired coupons or code dates, test-market products, and food drive collections.

Food rescue programs take excess unserved perishable and prepared food and distribute it to agencies and charities that serve people in need. Many of these agencies order fresh produce and packaged products from food banks each week for their meal programs or food pantries. Many also take direct donations from stores, restaurants, cafeterias and individuals with surplus food to share. The Food Group, Second Harvest Heartland, and Loaves and Fishes are examples of organizations that accept perishable food for redistribution in the metro area.

Food to animals

Farmers have long relied on food discards to sustain their livestock. In food-to-animal programs, food waste is collected for animal feed, typically for hogs. Farmers provide collection containers and pick-up service for a fee. Barthold Recycling is a farm that collects food waste in the metro area to feed to animals.

Feeding waste food to livestock or having the food processed into animal feed is a viable option for recycling food scraps and provides economic and environmental benefits for all involved.

No federal rules or regulations apply if surplus food provided to animals contains no meat or animal materials. However, there may be state laws that regulate such feeding. If the surplus food contains meat or animal materials or has come into contact with meat or animal products, converting food into feed for hogs is regulated by the Federal Swine Health Protection Act (PL 96 468). This act requires that all such food is boiled before being fed to hogs and that facilities conducting the boiling be registered with either the USDA or the chief agricultural or animal health official in the state in which the facility is located. The Minnesota Board of Animal Health governs these programs.

Food-to-animal feed

There are also companies that convert food discards into commercial animal feed and pet food. ReConserve of Minnesota is a local company that collects food waste (not including meat) to manufacture into a dry feed product for animals. Their main customers are large food-processing companies that generate substantial amounts of vegetative and bakery waste.

Rendering fats, oil, and grease

Liquid fats and solid meat products can be used as raw materials in the rendering industry, which converts them into animal food, cosmetics, soap, and other products.

Be sure to never flush used fats, oil, and grease, down drains. Flushed fats, oil, and grease accumulate and can clog the pipes and pumps in the public sewer lines and wastewater treatment facilities. Clogs result in costly sewer overflow spills.

Commercial organics composting

Organics recycling is the collection of food scraps, food-soiled paper products, and certified compostable products for delivery to a commercial composting facility. This collection method differs from food-to-animal, food-to-animal feed and rendering fats, oil, and grease programs because more materials can be collected together and because it is an outlet for food scraps that are not otherwise edible, rather than wasted food that could go to a higher purpose like feeding people or animals.

In addition to curbside organics recycling, several drop-off options are available for organics recycling. Organics are accepted at the Hennepin County drop-off facilities in Bloomington and Brooklyn Park. The cities of Bloomington, Hopkins, Minneapolis, Richfield, Crystal, Minnetrista, and St. Louis Park also have organics recycling drop-offs available for their residents.

Additionally, a growing number of businesses, schools and institutions in Hennepin County have organics recycling programs, including schools in the Minneapolis School District, Best Buy headquarters, Target Field, Ikea and the University of Minnesota.

What is compost

Compost is organic material that is used as a soil amendment or as a medium to grow plants. Mature compost is a stable material that contains humus, which is dark brown or black and has a soil-like, earthy smell.

How compost is created

Natural composting, or biological decomposition, began with the first plants on Earth and has been occurring ever since. As vegetation falls to the ground, it slowly decays, providing minerals and nutrients needed for plants, animals, and microorganisms. Well-managed, larger-scale composting produces high temperatures around 150˚F that destroy pathogens and weed seeds that natural decomposition cannot destroy.

Commercial composting facilities use the following process:

- Materials for organics recycling are dumped and inspected to make sure they don't contain too many contaminants (like plastic and glass).
- Organics are then shredded and mixed with yard waste to get the correct mixture of nitrogen (provided by the food waste) and carbon (provided by yard waste) as well as the right moisture level.
- Microorganisms like bacteria go to work turning the organics recycling into compost. This process heats up the pile to over 130 degrees Fahrenheit. The combination of microorganisms, moisture, air, and time turns the organic waste into compost. A curing process allows the finished material to fully stabilize and mature.
- After about six months, the organics and yard waste mix has been recycled into compost. The finished compost is screened to remove as many contaminants, such as plastic bags and wrap, glass and metal cans, as possible. The compost is tested to ensure the material is safe to use.

Benefits of compost

The benefits of compost include:

- Suppressing plant diseases and pests.
- Reducing or eliminating the need for chemical fertilizers.
- Promoting higher yields of agricultural crops.
- Reducing soil erosion and filtering stormwater.
- Increasing moisture retention and improving structure of soils.
- Facilitating reforestation, wetlands restoration, and habitat revitalization efforts by amending contaminated, compacted and marginal soils.
- Cost-effectively remediating contaminated soils. Where applicable, using compost costs about half as much as conventional soil, water and air pollution remediation technologies.

Composting at home

If you do not have access to curbside organics recycling or to an organics recycling drop-off, you still have options to reduce organic waste at home and protect the environment. There are two main methods for composting at home: backyard composting and vermicomposting. Although some people think composting is difficult and requires a great deal of scientific knowledge to do it right, composting is both easy and efficient. As a CRA, you can help dispel this myth.

Backyard composting

Backyard composting is an easy way to turn much of the waste from your yard and kitchen into a rich organic material that you can use to improve your soil.

Get a bin

The first step in home composting is to figure out what kind of bin you are going to use. You can purchase a bin or build your own.

Many lawn and garden stores sell compost bins. Or you can search for options online to make a compost bin yourself with a few materials and tools.

Find a place for your bin

Place your bin in a convenient location for easy access. Select a spot where your bins gets some sun to heat up your pile. Locating your bin in full sun will heat up the compost pile faster but will dry it out more often, requiring periodic watering. Some shade will prevent this.

Good drainage and accessibility is important for your compost bin. You should have enough room around the bin to allow you to turn the compost and a water source nearby in case you need to add moisture.

Add the right recipe

The following items can and cannot be composted in backyard bins.



Compost	Do NOT compost
Food and yard waste: ✔ Fruit and vegetable fruit ✔ Coffee grounds and filters ✔ Tea leaves and tea bags ✔ Egg shells ✔ Nut shells ✔ Plant trimmings ✔ Grass and leaves	Fats or animal products: ✘ Butter, cheese or dairy products ✘ Meat or bones ✘ Gravies or sauces ✘ Pet wastes


Note that fewer materials can be placed in backyard composting compared with curbside organics collection programs. This is because backyard compost bins do not heat up as much as industrial composting systems, so some materials like animal fats and oils cannot be broken down.

There are four basic ingredients for good compost: carbon, nitrogen, oxygen and moisture.

In the composting process, microorganisms use carbon for energy and nitrogen to make proteins. As a general rule for home composting, you want to add three parts carbon (dry, brown materials) to one part nitrogen (wet, green materials).

Browns (carbon)	3 to 1	Greens (nitrogen)
Dried grasses		Coffee grounds
Leaves		Fruit and vegetable peelings
Straw		Grass clippings
Sawdust		Green leaves
Twigs		Plant trimmings

Oxygen and moisture are important for the health and activity of the microorganisms. An active compost pile – one in which microorganisms are actively converting organic materials to compost – has good air circulation and moisture consistency of a wrung-out sponge. If a pile is compacted or too wet or too dry, microorganisms will cease their work and the pile will become passive. Correct air circulation can be accomplished by turning your pile with a garden fork at least once a month.

Backyard composting tips

- Keep your compost pile at the right moisture level. If your compost pile has a bad odor, it may lack air circulation or it may be too wet. Try turning the pile and/or adding dry, brown materials to the pile.
- If your compost pile is not heating up, it may need more nitrogen or green material. Add grass clippings or more fruit and vegetable scraps to the pile.
- Bury kitchen scraps at least eight inches deep in the compost pile to discourage critters.
- You can keep adding to your compost pile as it is composting. However, you may want to start a second pile if you have enough material.
- Before winter, add a layer of straw or hay to the top of open compost piles to keep them covered. Your compost pile will slow down in winter, but you can continue layering your browns and greens. The composting process will start back up when temperatures are warmer.
- The best pile is made up of a variety of materials.
- The smaller the pieces of compostable material, the faster the pile will decompose.

Vermicomposting

Vermicomposting, or composting with worms, uses red worms to decompose food waste. The worms are very effective at decomposing kitchen food waste and don't take up as much space as a backyard compost bin. The worms will eat kitchen scraps and produce compost and a liquid fertilizer.

Setting up vermicomposting

- Buy a bin specifically designed for vermicomposting or construct your own.
- Add bedding. Peat moss, shredded newspaper or leaves are good options.
- Purchase worms. A general rule is one pound of worms for every half pound of food.

Feeding the worms

The following are items you can and cannot feed to the worms.

Feed these to the worms:	Do not feed worms:
✔ Uncooked fruits, vegetables and grains	✘ Meat, fish, and other animal products
✔ Egg shells	✘ Dairy products
✔ Coffee grounds or tea bags (in limited quantities)	✘ Greasy or fried foods
	✘ Pet waste

Resources

- **hennepin.us/organics**: Information about residential organics recycling programs in Hennepin County
- **hennepin.us/businessorganics**: Information about organics recycling options for businesses and organizations
- **hennepin.us/composting**: Information about compost bins and instructions for backyard composting.
- Food waste data and resources
  - **refed.com**
  - **epa.gov/recycle/preventing-wasted-food-home**
  - **savethefood.com**
- Preventing wasted food:
  - **savethefood.com**
  - **trashorcash.org**
  - **wastedfood.com**
- Food storage preservation:
  - **extension.umn.edu/food-safety/preserving-and-preparing**
  - **nchfp.uga.edu**
- Farmers markets, CSAs and local food resources
  - **minnesotagrown.com**
  - **slowfoodmn.org**
  - **mfma.org**
  - **landstewardshipproject.org/csa-farm-directory**
- Print resources: Order printed copies online at **hennepin.us/environmentaleducation**
  - How to compost at home factsheet
  - Troubleshooting home composting problems
  - Refrigerator insider and tips to prevent food waste flyer
  - Fridge check guide
  - Fruit and veggie storage guide
- Food waste prevention apps list
  - Plan meals: Samsung Food or Paprika
  - Store food: Foodkeeper
  - Buy discounted food: Too Good to Go
  - Share food: Olio, NextDoor, or Facebook Marketplace
  - Rescue food: Food Rescue US

Chapter 4 | Consumption and the Three Rs

The three Rs

About 1.4 million tons of garbage are generated in Hennepin County every year. From packaging and food scraps to junk mail and excess paint – it takes a lot of time and money to deal with all of that trash. Most are familiar with the phrase "reduce, reuse, recycle," but let's consider how well we truly understand the three Rs.

Included in this chapter

- The three Rs
- Consumption
- Types of products
- Reducing waste
- Packaging
- Practicing better consumption by precycling

Reduce

When a consumer declines to buy something or a manufacturer opts not to produce a product, they are practicing source reduction or waste prevention. Preventing waste in the first place is the first and most impactful step to take in managing waste. Reduction is at the top of the waste management hierarchies from both the U.S. EPA and State of Minnesota.

The reduce part of the three Rs refers to any method used by a consumer or producer of a product to reduce the amount of solid waste that will require some sort of management, whether that be recycling, composting, incineration or disposal. If something is never created or you don't buy it, you don't have to worry about how to reuse it or dispose of it later on.

Source reduction can also be used to reduce toxicity in the waste stream. For example, consumers practice toxicity source reduction when they buy or make non-toxic cleaning products.

Reuse

Reuse means finding ways to put existing materials back to their intended use and using things over and over again. There are many ways to practice the second R. Using durable, reusable items in place of disposable options is a good place to start. Things to use reusable items for include coffee mugs, food containers, napkins, shopping bags, straws, utensils, and water bottles. By helping to avoid disposable items, this strategy also helps accomplish the first R – reduce. You can also donate to and buy items from reuse retailers like thrift stores and consignment shops, or look for reused items on online swap sites.

Recycle

Recycling refers to systems that collect, separate, process and market materials from the waste stream so they can be manufactured into new products. Many materials can be recycled. Types of paper, glass, metals, and plastics are collected in most curbside recycling programs, and other materials like electronics, mattresses, and motor oil are collected at drop-off sites. Organics recycling, where food scraps, food-soiled paper, and compostable products are turned into compost, is another form of recycling.

Some recycling programs are supported by product stewardship, which means that manufacturers take responsibility for their products from "cradle to cradle." This includes providing and paying for the collection, reuse, and recycling of the products they make when those products are no longer being used by the consumer.

Consumption

Every product manufactured impacts the planet. Manufacturing uses resources and contributes to pollution. Waste prevention involves changing consumption habits and production methods to conserve resources.

When we must buy something, we can reduce the environmental impact by purchasing durable and made-to-last products, looking for products with recycled content, choosing to reuse products instead of buying new, and selecting products with minimal packaging.

We are consumers living in a market economy. Many factors influence our purchasing decisions, including attitudes toward the gross domestic product (GDP), product marketing strategies that exploit our values and emotions, and the planned obsolescence of goods produced.

Consumerism and the GDP

All consumption contributes to the gross domestic product (GDP), which is the total value of all the goods and services produced in the economy in one year. The concept of GDP is influential in shaping our attitudes and decisions as consumers. We are told that the country's economic well-being is linked to our consumption of goods. The more we buy, the better off our economy will be. Conversely, (by implication, at least) consuming less makes us worse off.

But this is a faulty argument. GDP is a quantitative measure, not a qualitative one. Though it reflects the numbers of goods and services purchased, it doesn't evaluate products in terms of their social or environmental benefits or impacts. Consider the following examples:

- Buying cigarettes contributes to the GDP. So does the cost of health care services required to treat the myriad diseases associated with smoking.
- An oil spill that requires cleanup and restoration services will raise the GDP.
- Producing excess packaging and undesired junk mail also enhances the GDP.

Many countries, such as Germany, Sweden, and Switzerland, have standards of living equal to the U.S., but they generate half the amount of waste per capita! We don't improve the quality of our lives by increasing our waste stream.

The 325 million people who live in the U.S. consume more resources and create more waste than the 1.38 billion people in China or the 1.32 billion people in India. The U.S. represents less than 5 percent of the world's population, but we consume about one-quarter of the Earth's total biological capacity. This is the capacity of ecosystems to produce biological materials and absorb wastes using current technology. About 18 percent of global energy in 2015 was consumed in the U.S., according to the Energy Information Administration. For many mineral resources, such as aluminum, the U.S. also consumes a disproportionately large share of world supplies relative to its population.

The notion that we must consume ever-increasing quantities of stuff to keep the economy growing is flawed for several other reasons. In a world of finite resources, perpetually increasing consumption cannot ultimately be sustained because it involves extracting raw materials faster than they can be naturally replenished. Experience also tells us that, even before we run out of those key resources, the pollution and habitat impacts of increased consumption will negatively impact the quality of life for people and the planet. Finally, although consumer spending does stimulate the economy and creates jobs, we don't need to limit our spending to low-quality/high-waste items. Buying high-quality, durable goods, services and life-enriching experiences and putting money into conventional savings and investments will also fuel the economy, usually with less waste.

A resource-hungry world and the need for sustainable materials management

Our reliance on minerals as fundamental ingredients in the manufactured products used in the U.S. – including cell phones, flat-screen monitors, paint and toothpaste – requires the extraction of more than 25,000 pounds of new, non-fuel minerals per capita each year. This rapid rise in mineral use has led to serious environmental impacts, such as habitat destruction, biodiversity loss, overly stressed fisheries and desertification.

It is projected that between 2000 and 2050, the world population will grow 50 percent, global economic activity will grow 500 percent, and global energy and materials use will grow 300 percent. Commenting on the effects of material resource use on the environment, the heads of major research institutes in the United States, Germany, Japan, Austria and the Netherlands have noted that, "unless economic growth can be dramatically decoupled from resource use and waste generation, environmental pressures will increase rapidly."

In addition to exceeding the Earth's bio-capacity by extracting too many materials, we return most of what we extract to the Earth as waste very quickly. According to the World Resources Institute, "one-half to three-quarters of annual resource inputs to industrial economies is returned to the environment as wastes within just one year."

Not only are we drawing upon nonrenewable resources and impacting the environment at an increasing rate, we are also creating more waste. As U.S. consumers have grown to favor disposable products and convenience goods, waste has increased at all stages of the material life cycle.

Advertising

We're surrounded by advertising campaigns that are strategically designed to influence our purchasing decisions by confusing our wants with needs. Although ads do provide us with information about new and improved products, they are often designed to pressure us to buy things we don't really need.

Advertisers rely on a few "hot button" themes: happiness, youth, status, success, luxury, convenience, and beauty. The convenience theme figures prominently in product marketing. For example, consider the number of ads on television for household items such as paper towels and plastic wrap that are convenient but disposable. "Time-saving" instant/microwavable meals – many of which are packaged in non-reusable and possibly non-recyclable plastic dishes –appeal to consumers' desires for convenience.

As consumers have become more environmentally conscious, we've begun to see green marketing campaigns. Unfortunately, these appeals to a "green ethic" may not guarantee the environmental soundness of the product or its packaging.

The following examples illustrate possible ways that green marketing can be misleading, or "green washing:"

- **"Biodegradable"** is a term you may see on packaging often intended to imply the item is compostable. Biodegradable means that an item decomposes under typical conditions. Many assume that is a relatively short amount of time, when actually the timeline for biodegradation varies widely. Unprocessed materials like fruits and vegetables can take as little as a week to a few months to biodegrade, while plastics take thousands of years. There is no regulation on the use of this term, so it's a term to view with caution.
- **"Recyclable"** labels on nationally distributed products can be misleading because of differing local conditions. The collection systems, processing facilities, and markets for recycled materials vary greatly throughout the country. If a product does not have local resources to get to the respective recycling market, then it isn't really recyclable.
- **"Made of recycled content"** may mean that the item contains 1 percent recycled content, 100 percent recycled content, or any percentage in between. The product being marketed may contain pre-consumer, industrial scrap material, which wouldn't have been landfilled anyway, instead of post-consumer material, which is derived from products that have already served a useful life. As a rule, higher levels of post-consumer content indicate lower environmental impact, but product labels may not tell the whole story.
- **"Environmentally friendly," "Earth-friendly," "eco-friendly," "bio-" or "green"** are essentially meaningless because there are no standards that products with these labels must meet. Still, they're popular and common advertising gimmicks.

Labels you can trust

Some labels have standards, regulations, or guidelines that mean you can trust the information they're communicating. The following are some labels you can trust.

- **How2Recycle:** The How2Recycle label was created to provide consistent and transparent recycling information on packages to consumers in North America. The label is being used by hundreds of large product manufacturers, but it is still relatively new. The label tells consumers how to prep the material for recycling, what type of material the packaging is made of, which part of the packaging is recyclable, and where to recycle it. The label also recently developed a similar format for compostable packaging.

- **BPI certified compostable:** The Biodegradable Products Institute (BPI) is the certifying entity for compostable plastics in North America. Look for the BPI logo on the products you purchase. You can also check to see whether a product meets the BPI standards for compostability at **bpiworld.org**.

Recycled-content labels explained

- **Recycled-content:** Product contains recovered materials. Recovered materials are wastes that have been diverted from conventional disposal, such as landfills, for another use. Recovered materials include both pre-consumer and post-consumer wastes.
- **Pre-consumer content:** Materials are generated by manufacturers and processors and may consist of scrap, trimmings, and other by-products that were never used in the consumer market.
- **Post-consumer content:** Material is an end product that has completed its life cycle as a consumer item and would otherwise have been disposed of as solid waste. Post-consumer materials include recyclables collected in commercial and residential recycling programs.

Recycled-content products may contain some pre-consumer waste, some post-consumer waste or both. A product does not have to contain 100 percent recovered materials to be considered "recycled," but the higher the percentage of recycled content, the greater the amount of waste that is diverted from disposal and the greater the environmental benefit. Always look at the amount of post-consumer recycled content in a product.

Types of products

Three basic types of products are produced and purchased in the United States: consumable, durable, and disposable.

Consumable products

Consumables include such things as food and fuel. When used (consumed), these products are gone and permanently transformed into energy and waste.

Gasoline is a prime example. We consume gasoline to propel our cars (energy) while simultaneously producing air pollution (waste).

Durable products

Durable products include clothing, furniture, and tools. These products are designed to be used over and over again, and we can maintain and repair them to ensure longer product life. A sweater, for example, can be maintained by washing and repaired by darning and patching to last for many years.

Only at the end of their useful lives do durable products end up in the solid waste stream. How well a product is made and maintained along with how often it is used determines how soon it will need to be discarded and replaced with a new product.

Disposable products

Disposable products include items like paper or plastic dishes and utensils, non-rechargeable batteries, and personal-hygiene products. Disposables are designed and produced to be used only one time. Once used, they're thrown away.

Among the first disposables to appear on the market were hospital supply products, such as disposable syringes and gloves. They were promoted as being more sanitary than their durable counterparts, and their use is almost universally accepted as a health care standard.

Eventually, the use of disposables expanded from hospitals into homes. Disposable home products are more often touted for their convenience rather than hygiene. They were originally intended to serve as backups to durables, not as substitutes.

Paper towels, for example, were meant to capture the occasional big spill. In most homes today, paper towels have replaced their reusable cloth predecessor. Likewise, disposable diapers were initially intended for use during travel. Now most parents use disposables all the time. Gradually, these and other disposable products have all but replaced their durable counterparts.

Product obsolescence

A much subtler form of disposability is seen in durable products that have been designed for obsolescence. There is quite a difference between an item that is truly worn out and one that is obsolete only because it was poorly made, is out of fashion, or has been upstaged by an "improved" version with "new and exciting" features. Planned obsolescence refers to products that aren't made to last or marketing that tricks consumers into believing they "need" the "enhanced" product.

Advertising executive Earnest Calkins is often credited with introducing the strategy of rapid, planned stylistic changes into 20th-century business thinking. In 1930 he wrote, "the purpose is to make the customer discontent with an old type of kitchen utensil, bathroom or motor car because it is old-fashioned, out-of-date. The technical term for this idea is obsoletism. We no longer wait for things to wear out. We displace them with others that are not more effective but more attractive" (Modern Publicity, 1930).

Planned obsolescence is now commonplace in many industries, most notably automobiles, clothing, electronics, home furnishings, and sports equipment.

Each year, manufacturers of men's and women's clothing forecast which colors they expect to be popular in the upcoming season. And, year after year, consumers purchase the color that is "in." Louis Cheskin of the Color Research Institute contends that, "most design changes are not made for improving the product either aesthetically or functionally, but for making it obsolete." Although design and marketing for obsolescence increases sales

for manufacturers, it has the ultimate and unsustainable effect of turning otherwise durable products into quickly replaced and then disposed of commodities.

Planned product obsolescence contributes to our waste problem and increases consumption of energy and natural resources. We can change it only if we know what we actually need rather than letting ourselves be influenced by advertising and trends.

Reducing waste

CRAs play a vital role in teaching others how to reconsider their consumption and recommend specific strategies for preventing waste before it enters homes or workplaces.

By purchasing items that are overly packaged, disposable or of poor quality, your cash can soon end up as trash. Taking steps to reduce waste at home and when we shop is good for the environment and cost-effective.

Here are some steps you can take to reduce waste:

1. **Avoid disposables:** From plastic bags to water bottles and mugs to paper towels, napkins, plastic baggies, straws, cleaning wipes, coffee pods and more, there are so many opportunities to choose durable, reusable items over disposable.
2. **Shop for less packaging:** Avoid single-serve and individually wrapped items. Buy in bulk and bring bags or containers to fill. Choose products in recyclables or refillable containers.
3. **Borrow, rent, and shop used first:** Before you run to the store to buy a new item, think about how much you will use it. Could you borrow one from a friend or neighbor, rent it at a local store, or purchase it used?
4. **Buy well, buy once:** Well-designed and constructed products that are repairable will last longer and usually save you money, even if they cost more initially.
5. **Repair before replacing:** When something breaks, our first instinct these days is often to replace it. But before jumping to that conclusion, consider if repair is an option. Bring the item to a Fix-It Clinic, see if there are repair shops or services for the item, or look for repair tutorials online.
6. **Sell, give away, or donate usable clothing and household goods:** Keep the reuse cycle going by donating or giving away usable items you no longer want or need.
7. **Get your name off junk mail lists:** The average household receives as much as 100 pounds of unwanted mail each year. See the Hold the Mail brochure for ways to get off junk mail lists.
8. **Give green gifts:** Avoid over-packaged, resource-consuming gifts that need batteries or electricity. Consider making a gift, sharing an experience, providing a service or giving an environmentally friendly product. And be sure that whatever you give, it's something the person really wants.
9. **Green your celebrations:** It can be easy to let your green habits slide when you're planning a party or joining a celebration. But this is also a great opportunity to lead by example! Carefully plan the amount of food being served, use reusable dishware, decorate with items that are reusable, recyclable, or compostable, make sure recycling and composting containers are available and your guests know what goes where. See our Green Party Planning checklist for more ideas.
10. **Choose actions that are right for you:** Take a look in your trash and recycling. What type of waste are you generating the most of? Are there opportunities to reduce or avoid that waste? Choose actions that will have the most impact on reducing your waste and that your household is likely to successfully adopt.

Packaging

Products are not the only waste-generating goods. Increasingly, packaging has become a focus of solid waste planners and consumers. And for good reason! Product packaging constitutes a large portion of the household waste stream and is a significant contributor to roadside litter. Containers and packaging made up 30 percent of the U.S. municipal solid waste stream in 2014.

Product stewardship for packaging isn't common yet in the U.S., but many European countries already require manufacturers to meet increased recycling goals and/or pay fees to cover the cost of recycling packaging materials through programs such as the Green Dot (the German "Grüne Punkt").

Purposes of packaging

Packaging has different purposes and functions. Some of these functions are critical while others are not. Here are some of the whys of packaging:

- **Product protection:** Sealed containers delay food spoilage. Wax, cellophane, and plastic wraps prevent moisture loss. Rigid foam, bubble wrap, cardboard, and paper padding protect breakable products during shipping. Oversized packaging is perceived to deter theft.
- **Identification:** Some packaging helps consumers identify products. For example, we expect beer bottles to be brown, green, or clear, depending on the brand.
- **Convenience:** Containers for ready-to-eat salads, other fast food items, and microwavable dinners are perceived as time-savers because we don't have to care for them. Once used, these materials are usually tossed into the trash.
- **Marketing:** Packaging is designed to sell by making one manufacturer's products look more desirable than those of its competitors. This marketing function often results in over-packaging. Children's toys, for example, are thought to be particularly enticing if they can be seen through hard plastic boxes.

Packaging materials

Glass, paper, plastic, aluminum, steel, and wood are commonly used packaging materials. All of these materials can be used in single-material and mixed-material packaging.

Aluminum cans are an excellent example of single-material packaging, which is generally easier to recycle than packaging created from multiple materials.

A mixed-material package is made of more than one type of material. Most of the products we buy come in mixed-material containers. Beverages, for example, may be sold in glass bottles that are covered with paper or plastic labels and sealed with plastic-lined metal caps. This is four different types of materials.

Sometimes, the mixed materials in packaging can be easily separated. Bottle caps, for example, can be removed from the bottles. Plastic cereal box liners can be removed so the boxboard can be recycled.

Some mixed-material packaging is made from inseparable, or composite, materials. Common composite-material packages include milk cartons and freezer boxes. Such packaging can be hard and sometimes impossible to separate.

Practicing better consumption by precycling

As we've seen, we're subjected to external influences that shape our purchasing habits and discourage waste reduction behavior. Becoming aware of these influences is a necessary first step in changing our behavior. Precycling is an approach to taking steps to become better consumers.

Much of the time, people make purchasing decisions with little prior thought or planning. As a result, they may buy products that aren't as useful as they had thought. Ill-considered purchases become clutter and eventually waste. This process contributes to the excess use of resources and adds to our waste stream.

To avoid this, consider this simple, three-step process:

1. Decide what you need.
2. Consider and identify alternatives to buying new products.
3. Select the best product for your real needs.

Precycling strategies

- **Make your own:** Use scrap paper for note pads, reuse glass jars and plastic tubs for canisters or containers, relabel and resend envelopes
- **Rent or borrow:** Things like ladders, slide projectors, party supplies, yard and garden equipment, camping and sports equipment, and library books
- **Maintain and repair:** Automobiles, shoes, clothing, appliances, furniture, tools
- **Buy used or resell:** Kitchenware, appliances, clothing, furniture, toys, musical instruments, sports and camping equipment
- **Donate or resell:** To charitable organizations, thrift stores or consignment shops; at rummage or yard sales; through classified ads, Craigslist, Facebook Marketplace, NextDoor

Step 1: Deciding what you need

We are all targets of marketing campaigns designed to make us think we need what manufacturers are selling.

Before making a purchase, ask the following questions:

- Why do I want this?
- How often will I use it?
- What are my alternatives to this product?
- Can I get along without it?
- What will I give up in order to buy this (e.g., time spent earning money to buy it, money and time spent on maintaining and disposing of it)? Is it worth it?

Step 2: Finding alternatives

Once you've decided what you need, consider alternatives, such as reusing an existing item rather than buying a new one. We can reuse by using items we already have, giving away or selling goods we no longer need, or purchasing used items. Reuse can also include renting or borrowing.

Party rental stores are great places to get dishes, flatware, and linens for larger parties and gatherings. There are now tool and toy libraries available (in addition to your traditional libraries for books and media). And don't forget about your family, friends, and neighbors – they are great resources for borrowing, sharing, swapping, and reparing.

Before purchasing something new, ask yourself:

- Is there something I already have that would serve the same purpose?
- Can I make it from things I already have?
- Can I borrow or rent it?
- Can I buy it used?

Step 3: Selecting the product and the package

Sometimes purchasing a new product really is the best option. Once you've gone through steps one and two and realized that this is the case, use selective shopping strategies. This means choosing both the product and its packaging carefully in order to minimize waste.

All manufacturers claim their products are the best. Use your own judgment by asking these questions before you buy:

- Will this product last? Some toys can be passed from child to child, while others break before the first child is tired of them. Purchasing durables, such as cloth napkins and lunch food containers, eliminates the need to replace them after each use.
- Is it repairable? Can the shoes be resoled or are parts replaceable? Well-designed and constructed products that are repairable will last longer and usually save you money, even if they cost more initially.
- Is it a classic? Will I be happy with it years from now?
- What will happen to it at the end of its life? Is it made out of materials that can be safely returned to the natural environment?
- Is the product free of unnecessary packaging? Is the package refillable or recyclable? Choose products with the least packaging over individually wrapped items. This will save you money as well.

Selective shopping: Items to look for

- Recyclable products: Cardboard and paper bags, aluminum cans, glass jars and bottles, tin cans
- Recycled content: Toilet paper, facial tissue, greeting cards, printer paper, glass jars, aluminum cans, paperboard, cereal boxes
- Durable products: Cloth diapers, refillable razors, refillable pens, cloth napkins, towels and rags, cast-iron pots and pans, covered food containers, travel mugs, rechargeable batteries
- Minimal packaging: Meat wrapped in paper rather than Styrofoam and plastic wrap, no single-serving packages
- Bulk buying: Loose produce, meat and seafood from a meat counter, food from self-serve bins (bring your own jars or containers), dish and laundry soap, hardware supplies, large blocks of cheese

We live in a society where the old saying, "use it up, wear it out, make do, or do without" has been replaced by marketing strategies that encourage impulse buying. These strategies help us to reduce waste by considering our purchases before we make them.

People acting together can make a difference, so don't hesitate to speak up. Tell store managers what kinds of products and packaging you prefer. Bring a reusable bag or ask for your purchase not to be bagged (such as when you order just a sandwich). If just one-quarter of U.S. households used 10 fewer plastic bags a month, 2.5 billion fewer bags could be made each year. Four or five reusable bags used multiple times at least once a week can replace 520 plastic bags a year.

Bring your own containers to restaurants to bring home leftovers. Contact companies and let them know when products don't last or if packaging is excessive or non-recyclable. If enough people do this, manufacturers will change.

Resources

- **hennepin.us/choosetoreuse:** A searchable guide of places to sell, donate, buy, repair, rent, and share reusable items plus reuse events and spotlight on reuse articles.
- **hennepin.us/greendisposalguide:** A searchable directory of recycling and disposal options for common household items.
- **hennepin.us/recycling:** Information about residential recycling in Hennepin County.
- **hennepin.us/-/media/hennepinus/business/work-with-hennepin-county/environmental-education-activities/reducing-waste-appendix-green-party-checklist.pdf**: Green party checklist
- Print resources: order copies at **hennepin.us/environmentaleducation**
  - Hold the Mail
  - Residential recycling guide
  - Green Disposal Guide magnet
  - Drop-off facility brochure

Chapter 5 | Commercial waste reduction and recycling

Businesses are responsible for just over half of the waste generated in Hennepin County. And nearly two-thirds of the waste created at businesses and non-profits is recyclable.

This chapter will address how to implement commercial waste reduction and recycling programs and options for diverting organic waste in commercial settings. Implementing waste reduction and recycling at multifamily properties, including apartment buildings, condos, and townhouses, is also covered here because most residential buildings with five or more units are serviced like commercial accounts.

Included in this chapter

- Waste collection in a business setting
- Participation in commercial recycling
- Developing a recycling program at work
- Environmentally preferable purchasing
- Recycling at multifamily complexes

Waste collection in a business setting

In Hennepin County, the hauling of commercial waste is an open system, which means businesses can select any licensed hauler to collect their waste or they can self-haul to a recycler or drop-off facility.

Recycling is mandated by state law (Minnesota Statute 155A.151) for businesses that generate over four cubic yards of trash per week.

Hennepin County revised its recycling ordinance (Ordinance 13, Solid Waste Source Separation) in 2018 to include new recycling requirements for businesses. This update incorporated the state law and added specific guidelines about how to collect recyclables. Most businesses in Hennepin County must:

- Have hauling service, either using single-sort service or separate hauling for at least three types of materials such as cardboard, cans, and plastics.
- Place a recycling bin wherever there is a trash bin.
- Label bins with color-coded labels for each waste type (blue for recycling and red, gray or black for trash) and include images of acceptable items.

In addition to separating recyclables from the trash, some businesses that generate large quantities of food waste must divert food scraps. This rule became effective January 1, 2020. Businesses that must separate their food scraps meet both of these two factors:

- Generates one ton or more of trash per week or contracts for eight cubic yards or more of trash service per week
- One of the following sectors: restaurants, grocery stores, food wholesalers, distributors and manufacturers, hotels, hospitals, sports venues, event centers, caterers, nursing and residential care facilities, office buildings with dining services, farmers markets, food shelves and food banks, colleges and universities with dining services, shopping centers, airports, golf clubs and country clubs, or rental kitchens and shared-use commercial kitchens.

These covered businesses must meet the following requirements to be considered in compliance with the ordinance:

- Have food waste recycling service in place, which could be food-to-animals or organics recycling for composting
- Provide labeled food waste collection containers in their back-of-house areas
- Separate food scraps from trash and recycling in back-of-house operations
- Provide education and train employees annually

Participation in commercial recycling

For some businesses, recycling provides significant financial savings and is essential to their daily operations.

For example, a big box retailer that generates large quantities of cardboard from product shipments and has the ability to store and transfer the cardboard to a paper recycler may get paid for the material rather than paying to have it collected with their garbage or recycling service.

Another example is a major food distributor that generates primarily unprocessed food waste and is able to send it to a compost facility at a lower cost than disposing of that material as trash.

Under these circumstances, there are large volumes of consistent materials making it viable to sell the material directly to a processor. Businesses save on money by avoiding disposal or recycling collection costs, getting revenue for the material and avoiding solid waste fees. Counties charge fees for solid waste disposal; materials that are recycled are exempt from the fees.

Small business with minimal waste may find it challenging to participate in recycling programs because recycling collection service may be an additional cost. If the amount of materials generated is minimal, avoiding waste disposal fees may not provide much incentive for waste diversion. Additionally, a business in a multi-tenant building may want the service and be willing to pay for it but is limited by a building owner or management company that is unwilling to provide the service.

Additional barriers may include:

- Building or exterior space limitations for storing containers, especially with multi-sort systems.
- Local health and building code requirements for container siting and servicing.
- Additional time required for custodial staff to get materials set out for collection.
- Coordination between multiple tenants, custodial staff, and building owners.
- Limited service options.

Although these commonly referenced barriers may prevent some businesses from participating in recycling programs, they can be overcome.

Developing and maintaining a waste reduction and recycling program at work

Take the following five steps to establish and maintain a successful business waste reduction and recycling program.

Step 1: Gain Management Support and Assign a Coordinator

It is critical to gain management support for your program.

Programs succeed best when management:

- Implements company-wide waste reduction and recycling policies.
- Allocates resources (personnel and money).
- Leads by example by reducing waste, recycling, and buying recycled products.
- Stays committed and involved.
- Supports incentives to reward staff involvement.
- Communicates often and in a variety of ways.

Assign someone to coordinate the program. Choose someone who is enthusiastic, organized, and communicates well with co-workers and management.

The coordinator will:

- Work with others to evaluate which materials can be reduced, recycled, and composted.
- Teach co-workers and management how to reduce, reuse, and recycle waste.
- Coordinate activities with service providers and other company departments.
- Keep everyone in the company informed about the program goals and successes.

If a business has several departments, it may be necessary to create a waste reduction and recycling team to work with the coordinator. The team should include someone from multiple departments, including management, maintenance, production, purchasing, personnel and food service.

Step 2: Look in the bin

A waste assessment will help you become aware of what waste your business creates and how it is managed. Staff can then target opportunities for reduction, recycling and composting.

Deciding where to begin with an assessment depends on the type and amount of waste the company generates.

A waste assessment should address:

- How much waste the business generates.
- Where, how, and why waste is generated.
- What types of materials are being thrown away.
- Where the waste is going and how it is managed.
- The cost of collection and disposal services.
- How much of the waste can be reduced, recycled, or composted.

Step 3: Reduce waste

Waste reduction can lower costs in every area of a business – not only in offices, break rooms, shipping, and manufacturing, but also building, equipment, and vehicle maintenance.

The following are effective waste-reduction strategies. Use these ideas to kick off brainstorming conversations about what would work at your office.

- Set printer defaults to print double-sided, and encourage employees to print less.
- Replace plastic cups, plates and utensils with reusable counterparts.
- Provide reusable dishes in break rooms and kitchens, and encourage employees to bring lunches in reusable containers.
- Adopt green purchasing policies, such as selecting products that are less toxic, conserve energy or water, or use recycled-content materials.
- Reduce packaging waste by buying supplies in bulk and using reusable shipping containers.
- Donate unwanted supplies and other items to organizations or exchange with other businesses. Reuse Minnesota (reusemn.org) and the Minnesota Materials Exchange (mnexchange.org) are good places to start.
- Host green meetings. Limit printing of materials. Offer call in options. Provide information about transit, walking and biking to the meeting. If food is being served, offer organics recycling and make sure food service items are reusable, recyclable, or compostable

- Choose non-hazardous or less-hazardous cleaning products and use reusable towels and rags.
- Evaluate your company's processes to identify ways to use raw materials more efficiently and use less hazardous alternatives.

Step 4: Start recycling

All business can recycle the basics like paper, cardboard, cartons, plastic, metal, and glass. Businesses that produce a lot of food waste should consider adding organics recycling to their waste diversion efforts.

Choosing a recycling service provider

Find out how much you're paying for waste service by looking at your current waste bill. If a third party handles the billing for your waste, ask them for the trash and recycling information. Check the terms and duration of your waste contract.

Then get quotes from your current waste hauler for adding services such as recycling or organics recycling, and request quotes from at least two other haulers to compare prices. Comparison shopping will help you find the most complete, reliable and cost-effective option.

Ask the following questions of potential recycling and organics recycling service providers:

- What materials do you collect?
- Is there a minimum amount required for collection?
- Do you provide collection containers (desk paper trays, bins, barrels, dumpsters, outside storage containers, etc.)?
- How is the pickup service scheduled (weekly, on-call, etc.)?
- Do you provide educational materials and recycling and/or organics recycling training?
- What are your payment terms?
- Do you require a contract for service and if so, what are the terms of the service contract?

Set up your program

Remember the following to set up effective recycling containers:

- Make recycling convenient
  - Create sorting areas by placing recycling, trash and organics containers next to one another. Set up sorting stations where waste is generated and where there is heavy traffic.
  - If employees do not have recycling bins at their desks, consider setting up an intermediate recycling area for approximately every 20 employees. Make sure the recycling area is conveniently located in a high-traffic area, such as by the break room or restroom.
  - Put a recycling bin by the mailboxes and copy machine so it's convenient for people when sorting their mail and making copies.
  - When starting an organics recycling program, it may help to start in the kitchen or lunchroom and expand to other areas over time.

- Make recycling easy
  - Use consistent, color-coded containers and signs with images of items to help users figure out what goes where. The idea is to distinguish between the waste streams as much as possible so users are aware that not all waste is trash and to help them easily sort their waste. We recommend blue for recycling, green for organics, and red, black or gray for trash.
  - In addition to color-coding, using different shapes of containers and lids, and signs, labels or posters can draw attention to the different containers.
  - Place labels and signs on or near containers so users can refer to them to determine how to sort their waste. Consider using multiple signs and labels to reinforce the materials that go in each container.

- Set up your central collection area
  - Place all of your dumpsters/carts together.
  - If your hauler has not done so, clearly label all of your dumpsters/carts to help workers identify quickly and accurately which waste goes where.
  - Include the dumpster area in the training of your cleaning and other staff.

Design with flexibility in mind. Be ready to change initial practices as information is gathered and new handling methods are learned. If the business generates large quantities of materials, consider establishing a pilot program to work out potential problems before expanding the program company-wide.

Step 5: Spread the word

Employee participation is critical to success. Gain the support and active participation of upper management immediately. Employees who see their boss reducing, reusing, and recycling are more likely to participate. Make participation easy by educating everyone about the program.

Announce and promote the program

Launch the program with a special event or staff party. Then promote the program both internally and, if applicable, throughout the community.

Consider all of your communication channels. Make announcements at staff meetings, post messages on company bulletin boards, send email messages, and post signs and flyers announcing the start of the new or improved program. Include the commitment to reduce waste, recycle, and compost, and clearly explain the new program procedures and how to sort materials. Introduce the program coordinator and provide his or her phone number and/or email address.

Plan a short monitoring period in which someone stands by the waste station(s) to help employees and/or customers separate their waste correctly into recycling, organics and trash bins. This is particularly important with organics recycling, which is a new concept for many people.

Having someone available to help with sorting and to answer questions reduces contamination and makes for a smoother transition as people learn new habits.

Hold training sessions

Training is vital. Everyone who handles waste, including employees, custodial staff, and outside contractors, should understand how the program works.

Staff meetings are ideally suited for training sessions. Both the coordinator and management should be involved in answering questions, providing encouragement, and discussing the program's needs and successes. Provide employees with a list of materials currently accepted (or specifically rejected) by the recycling program, along with brief instructions on topics such as collection locations and material handling methods.

Plan for staff turnover to ensure continuing success of your program. Include components of the recycling and/or organics program when training new staff or hiring new contractors.

Keep employees informed and involved

Once underway, track successes to share with employees and management. Providing regular program updates and positive communication are critical for long-term success.

Here are some suggestions for keeping staff and management informed and involved:

- Send articles about program successes and staff involvement through emails or a company newsletter or internal website.
- Post flyers reminding employees of program goals and progress towards meeting them.
- Create a competition between floors, departments, etc. to see who can improve recycling the most.
- Form a green team or appoint recycling champions to help educate employees and customers, keep everyone informed of the business' progress, and lead additional environmental efforts.
- Give awards to employees or departments that

have demonstrated innovative strategies for waste reduction and recycling.

- Encourage employees to share innovative ideas and solutions.
- Work closely with your waste hauler to monitor progress, or conduct periodic waste assessments to see how you're doing.

Get recognized for your efforts

Make sure to let customers know about your program! Businesses are evaluated on many aspects of their performance, including their environmental stewardship.

Waste reduction and recycling programs show customers and vendors that your business cares about the community and environment. So, share your recycling efforts, goals and results with your customers. Some ideas:

- Send news releases about the program's accomplishments to community papers as well as environmental and business trade publications.
- Post signs and banners in public areas that inform visitors about the program.
- Motivate other businesses to establish their own programs. Speak at business meetings, workshops and seminars.
- Sponsor a local cleanup day or take part in community recycling activities and events. Let the community know the business cares.

Assistance available from the county

Many resources are available to help make waste reduction, recycling and organics programs successful. Access these resources at **hennepin.us/businessrecycling**.

Grants

The county has grants for small businesses and non-profit organization to start or improve recycling and organics recycling programs.

Professional staff assistance

County staff also offer the following free services:

- On-site assessments to determine best options and necessary start-up steps.
- Evaluation of potential costs and savings.
- Assistance with internal collection setup.
- Promotional and education materials.
- Follow-up and ongoing assistance.

Container labels

Hennepin County has a variety of signs and labels available for free to all businesses and organizations in the county.

Environmentally preferable purchasing

Purchasing decisions can greatly support waste reduction and recycling efforts. Environmentally preferable purchasing involves choosing products and services that have a lower impact on the environment and human health.

Taking the following steps can help ensure that purchases support waste reduction and recycling efforts:

- Make a company-wide commitment to purchase environmentally preferable products and services.
- Identify purchasing opportunities.
- Revise purchasing policies, ordering practices and product specifications.
- Set realistic, attainable purchasing goals.

Ask the following questions before purchasing any product:

- Is the product necessary? Is there a similar product that is a better choice for the environment?
- Is the product non-hazardous or less hazardous than other choices? Good resources include Green Seal (**greenseal.org**) and U.S. EPA Safer Choice (**epa.gov/saferchoice**), both of which assess product for human health and environmental concerns.
- Is the product reusable, durable or easily repaired?
- Can the product be found used? Reuse Minnesota (**reusemn.org**) and the Minnesota Materials Exchange (**mnexchange.org**) are good resources.
- Is the product made from recycled or compostable materials or renewable resources (such as plant-based raw materials)?
- Will a recycled-content product work in place of one made with virgin materials?
- Does the product conserve energy or water?
- Is the product refillable or available in bulk quantity to reduce packaging?
- Is product leasing an option?
- What happens to the product at the end of its life? Can it be recycled or composted? Does it need special disposal? Will the manufacturer take it back?

Buy recycled

Recycling is more than collecting, processing and turning materials into new products. Success only comes when the recycling loop is closed by purchasing products made from recycled materials.

Businesses can look for opportunities throughout their operations to substitute recycled-content products for those made from virgin materials. In most cases, the quality of recycled content products is comparable or superior. Look for recycled content in everything from office products and packaging to building materials and raw materials for manufacturing.

Examples of environmentally preferable purchasing

Equipment

- Develop maintenance contracts and purchasing specifications for laser printers and copy machines that support the use of recycled-content paper and remanufactured toner cartridges.
- Purchase used equipment.
- Purchase or lease copiers and laser printers that automatically copy or print on both sides (duplex printing).

Supplies

- Specify chlorine-free, recycled-content paper and soy- or agri-based ink when placing printing orders.
- Purchase laser, copy, and letterhead paper with 30 to 100 percent post-consumer recycled paper content.
- Contract with a custodial service that uses less-hazardous (less-toxic) or non-hazardous cleaners.

Products

- Tell your vendor to use waste reduction techniques, such as minimal packaging or returnable shipping containers and pallets.
- Manufacture products and packaging that can be reused, recycled, or composted.
- Evaluate all purchases considering "cradle to grave" costs such as liability, environmental impacts and employee safety during the manufacture, use, and disposal of a product.

Recycling at multifamily complexes

Nearly one-third of Hennepin County residents live in buildings with five or more units. Most of these properties contract as a business for waste and recycling services and are not included in a city's curbside program.

Cities are required to have and enforce ordinances requiring property owners to provide service to tenants. Hennepin County's Ordinance 13 added additional requirements for multifamily housing:

- Educational materials must be distributed to new tenants and at least once per year to all tenants.
- There must be a recycling bin wherever there is a trash bin in common areas such as laundry rooms, mail rooms and community rooms.
- Bins must have color-coded labels stating the waste type.
- Collection containers for recycling and organics must not be overflowing and must be accessible to tenants any time they have access to trash.

There are currently no requirements for multifamily complexes to provide organics recycling service to residents, however there may be local drop-off opportunities.

Uncovering the challenges and opportunities for multifamily recycling

In 2017, Hennepin County conducted a waste study to assess how well apartment and condo buildings were recycling. The study looked at the recycling diversion rate, contamination levels in the recycling, and the composition of what was being discarded as trash. The study had three main conclusions.

1. Apartment buildings have low recycling rates and high contamination rates: The study found that only 13 percent of everything being discarded by apartment and condo residents is being diverted for recycling. This is significantly lower than the countywide recycling rate of 41 percent. There is also a lot of contamination in the recycling. About 24 percent of what was put in the recycling was actually trash.
2. There are significant opportunities to divert more materials from the trash: Analysis of the trash found that only 30 percent was truly trash. The remaining 71 percent was materials that likely could be diverted. This included organics (33 percent), recycling (23 percent), bulky/reusable household goods (8 percent), textiles (7 percent) and hazardous waste or electronics (2 percent).
3. Service levels are not adequate: The study also found that typical service levels may not be adequate to collect the amount of recycling generated at apartment and condo buildings. On average, properties provided half the amount of service capacity for recycling as they did for trash.

Find the full report from the multifamily waste sort study at **hennepin.us/solidwasteplanning**, under Multifamily waste study in the Waste studies tab.

Improving recycling at multifamily buildings

Developing and maintaining a successful multifamily waste reduction and recycling program requires an onsite champion of the program, conveniently located and well-labeled containers, and ongoing education. Some buildings may need recycling materials in multiple languages for non-English-speaking tenants.

There are many opportunities for CRAs to help improve recycling at multifamily buildings. Some ways to help include:

- Directly educating tenants through door knocking that includes distributing educational materials and answering questions.

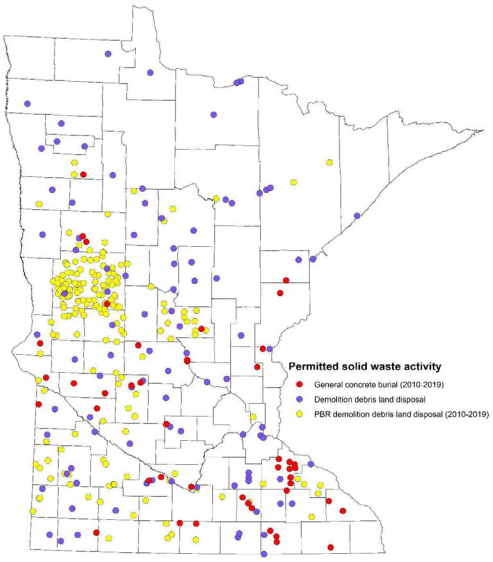
- Assisting complexes with new or revamped recycling or organics program set-up.
- Giving presentations that provide information about the building's recycling system to tenants and answer recycling questions.
- Connecting property owners to outlets for bulky-waste diversion, such as unwanted furniture and mattresses.
- Establishing onsite community gardens and composting bins for tenants.

Prior approval from the property management and/or owner needs to be obtained before activities are initiated. Hennepin County has a variety of materials available including container labels, posters, and educational materials in different languages. See the resources available at **hennepin.us/apartmentsrecycle**.

Resources

- **hennepin.us/businessrecycling**: Information about recycling grants, professional staff assistance, free container labels, and more resources available to help businesses and organizations start or improve recycling programs.
- **hennepin.us/apartmentsrecycle**: Information and free resources for property owners or residents interested in establishing or improving recycling programs at multifamily properties.
- **mnexchange.org**: The Minnesota Materials Exchange is a free service for businesses that connects organizations that have good quality, reusable goods they no longer need to those that can use them. Businesses can find low-cost or free materials and find new markets for surplus materials.
- **mnchamber.com/wastewise**: Private, non-profit, member-supported organization affiliated with the Minnesota Chamber of Commerce that helps businesses reduce waste and save money.
- **mnimize.org**: MNimize is a campaign to recognize and support businesses as they take action to reduce plastics.
- Print resources for businesses: order print copies at **hennepin.us/businessrecycling**
  - Business recycling best practices guide
  - Recycling at work guide
  - Organics recycling at work guide
- Print resources for multifamily complexes: order print copies at **hennepin.us/apartmentsrecycle**
  - Recycling at your building brochure
  - Recycling advocate recruitment flyer
  - Apartment recycling poster
  - Recycling door hanger
  - Recycling request business card

Chapter 6 | Construction and demolition waste

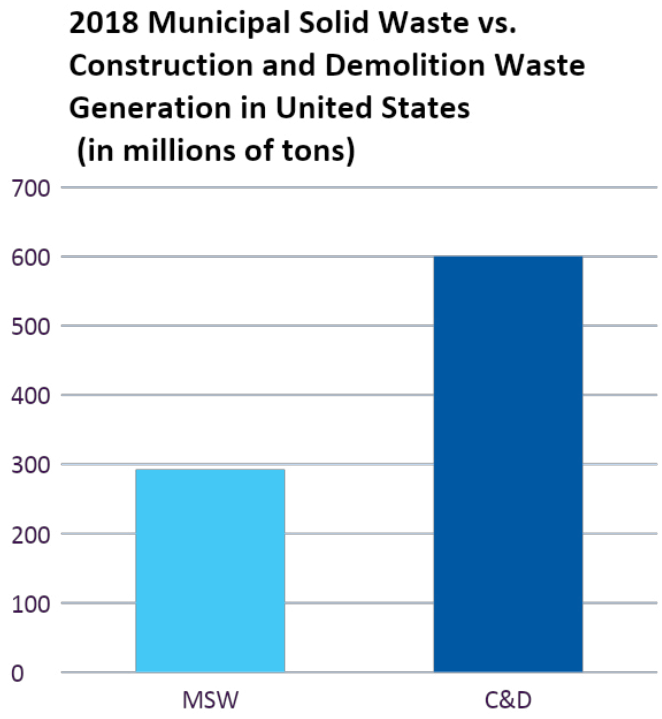


Construction and demolition waste (C&D) is generated during the construction, renovation, and demolition of buildings, roads, or structures and includes materials such as asphalt, carpet, concrete, drywall, lighting and plumbing fixtures, metals, and wood. C&D waste is not included in municipal solid waste (MSW) and C&D waste facilities and landfills are managed separately from MSW. Figure 1 shows where C&D waste management facilities are located across Minnesota.

Included in this chapter

- Why is there so much C&D waste?
- Hazardous materials in demolition projects
- Hazardous waste disposal
- Deconstruction
- Recycling C&D materials
- Communicate reuse and recycling goals
- Close the loop: incorporate used building materials
- What can CRAs do?

The EPA estimates that 600 million tons of C&D waste was generated in the United States in 2018, more than twice the amount of household trash. While C&D waste includes waste from both the construction and demolition of buildings, demolition represents more than 90% of total C&D waste generation, while construction represents less than 10%. On average, about 70% of materials from a demolition project go to a C&D landfill.



Why is there so much C&D waste?

A major contributor to C&D waste is development – when a new building is constructed, it often means that an older building needs to be demolished to clear space for the new build. This is especially true in urban areas where there is more limited space. Additionally, C&D waste is big and bulky by nature and includes materials like concrete and lumber that take up more space in landfills. Finally, some end markets for C&D materials are challenging, making it difficult to find ways to recycle C&D waste. For example, carpet is made up of many different types of materials which are held together with adhesives and are challenging to separate and process for recycling.

Many building materials have the potential to be salvaged and reused or recycled. In fact, about 90 percent of the materials in a typical demolition project could be salvaged and kept out of landfills. It is important to reuse and recycle C&D waste to prevent usable material from going to the landfill, making used building materials available to the community, and preserving historical building materials.

Hazardous materials in demolition projects

Construction, demolition, and renovation projects can reveal hazardous materials, such as asbestos, electronics, paint, pesticides, and items containing mercury or lead like fluorescent light bulbs and batteries. Managing these types of hazardous wastes properly is important in protecting public health and the environment and is required by law.

The following materials need to be removed at least two days prior to demolition or certain renovation projects per Hennepin County Ordinance 7 and State of Minnesota Rules.

- Aerosols, compressed gas cylinders, fire extinguishers
- Appliances
- Asbestos-containing material
- CFC-containing items (fire extinguishers, refrigerators, freezers)
- Electronics
- Hazardous wastes such as flammable liquids, pesticides, herbicides, solvents, cleaners, paints, adhesives, acid and caustics.
- PCB-containing items (transformers, light ballasts)
- Lead-containing items (lead paint unattached to substrate, lead-acid batteries)
- Material trapped in sumps and traps
- Mercury-containing items (batteries from smoke detectors, fluorescent lights, thermostats)
- Oils including used oil

Hennepin County staff conduct pre-demolition inspections of residential and commercial properties to help ensure regulated materials are removed prior to demolition. Hennepin County recommends that residents contact the city where the work is taking place for any additional requirements. Information about pre-demolition inspections and scheduling can be found by visiting **hennepin.us/demolition** or emailing **demo@hennepin.us**.

Hazardous waste disposal

Once hazardous materials are removed from a property, they need to be properly managed through reuse, recycling, or disposal at a hazardous waste facility. Refer to the list of Hazardous and Universal Waste Disposal Companies for C&D Sites found on **hennepin.us/demolition** for companies that accept this type of waste.

Household hazardous waste can be brought to a Hennepin County drop-off facility by residents only. Read more about household hazardous waste in Chapter 7.

PaintCare sites accept old paints, primers, sealers and clear-coats from businesses and households free of charge, with some restrictions. For eligibility and restrictions, and participating collection sites, visit **paintcare.org**.

Asbestos in demolitions or renovations

Asbestos-containing materials are required to be removed prior to demolition or renovation per Hennepin County Ordinance 7 and State of Minnesota law. Learn more about requirements for proper identification, management, and disposal of asbestos in demolition and renovations:

- Minnesota Department of Health (651-201-4620), **health.state.mn.us/communities/environment/asbestos/homeowner/index.html**
- Minnesota Pollution Control Agency (507-206-2644), **pca.state.mn.us/business-with-us/asbestos-in-demolition-or-renovations**

Deconstruction

Deconstruction is the careful dismantling of a building structure to preserve building materials so they can be reused. Compared to mechanical demolition, which uses equipment like bulldozers and wrecking balls to tear down a building, deconstruction involves taking a building apart with mostly hand tools, and materials are sorted into categories for efficient recycling and reuse. Through deconstruction, up to 25% of the materials in a typical home can be reused and up to 70% of the materials can be recycled.

In a full building removal project, a crew typically starts by removing interior fixtures, such as cabinets, lighting, and wood flooring by hand. Next, the structural deconstruction begins at the very top of the building, removing materials from the roof and attic, including dimensional lumber. As building materials are removed from the structure, they are sorted into categories by material type for reuse and recycling. In a full deconstruction project, the crew will remove materials until only the foundation is remaining, which is typically made up of concrete or brick and can be recycled.

Benefits to deconstruction include:

- Preventing usable materials from going to the landfill
- Making used building materials available to the community
- Providing additional jobs
- Supporting local reuse retailers
- Reducing dust from job site compared to mechanical demolition
- Potentially preserving historical building materials

Many building materials can be salvaged for reuse. Reuse is environmentally preferred over recycling or trash disposal because it avoids energy use and costs associated with manufacturing new products and diverts materials from landfills. There are several for-profit and nonprofit companies that accept usable building materials, including:

- Appliances
- Cabinets
- Doors
- Hot water radiators
- Light fixtures
- Windows
- Wood flooring and trim

Building materials can also be given away on platforms such as Craigslist or Facebook Marketplace or incorporated back into the new project. You can find a list of organizations that accept building materials for reuse at **hennepin.us/salvage**.

It is important to plan when considering deconstruction because the project could take longer to complete and could have increased labor costs. Hennepin County has resources available to assist property owners in deconstruction, including grant funds to offset additional costs. Learn more at **hennepin.us/deconstruction**.

Recycling C&D materials

Some buildings materials that can't be salvaged for reuse can be recycled. Planning ahead for what materials will be recycled and how much space will be needed to separate those materials for recycling is important. Finding enough space for the recyclable materials can be a challenge on some properties but planning should help maximize the success of recycling. Many processors accept mixed loads of materials for recycling but separating materials from the start of the project can increase waste diversion.

There are construction and demolition waste processing facilities in the Twin Cities that recycle materials such as asphalt, metals, and wood by sorting mixed loads of material, similar to a MRF. C&D recycling facilities can recover about half of materials for recycling, putting C&D materials to better use than if they were all sent straight to a landfill. They can also provide roll-off boxes to keep onsite to collect materials throughout the project at a comparable price to sending these materials to a landfill.

There should be a recycling plan in place before the project begins. Visit **hennepin.us/salvage** for a list of companies listed that accept loads of construction and demolition materials from residents and contractors.

Communicate reuse and recycling goals

It is important for residents to communicate their building material salvage and recycling plans with the contractor(s) when planning a home remodeling, construction, or demolition project. Use the tips below to get started.

Set clear goals

Decide on salvage and recycling goals from the start of the project to help you chose the right contractor to meet your needs.

Ask contractors how they manage waste

When searching for a contractor, inquire about how the company manages waste. Do they incorporate salvage or deconstruction into their projects? Do they bring debris to a construction and demolition recycling processing facility? If not, are they willing to try it out for your project?

Communicate throughout the project

Discussing your salvage and recycling plans throughout the entire project can help ensure materials are handled

properly. Consider writing a contract describing your waste management goals and requirements. Routine check-ins may also help confirm the project is going as planned.

Follow up

After project completion, ask the contractor for documentation verifying salvage and recycling goals were met. Documentation may include scale tickets from recycling processors or receipts from building material salvage organizations.

Green Building Practices

Green remodeling means thinking about your project with an eye toward its impact on the environment. Waste reduction and recycling, energy efficiency, and using sustainable materials are all important planning considerations.

The best approach is to focus on making green decisions from the very start. This way, they aren't viewed as separate but are integrated into your overall design and plan. Proper and early planning reduces the potential for costly design changes later that can create more waste. Hiring architects and contractors that have experience with and interest in green building can enhance your project's success.

Larger building projects may be candidates for green building certification programs like Leadership in Energy and Environmental Design (LEED). LEED is a set of voluntary, national standards developed by the U.S. Green Building Council for both commercial and residential projects. Learn more at **usgbc.org/leed**.

Minnesota B3 Guidelines can be applied to the design of new buildings or renovations to meet sustainability goals for site, water, energy, indoor environment, materials and waste. The B3 Guidelines are required on all projects that receive general obligation bond funding from the State of Minnesota. More information can be found at **b3mn.org**.

Close the loop: incorporate used building materials

Consumers are an important part in making recycling work because purchases send a message that salvaged products are valued. When out shopping for building supplies, help close the recycling loop by purchasing items made from reused or salvaged materials. Many stores in the Twin Cities sell salvaged building materials, such as doors, windows, light fixtures, cabinets, hardwood flooring and hardware. These materials lend authenticity to a remodel in an older home or interest and style to any construction project. Find a list of the salvage businesses and reuse retailers that offer a variety of home building materials at **hennepin.us/salvage**.

Reusing building materials preserves what is referred to as the "embodied energy" of the materials. Embodied energy is the energy consumed by all the processes involved in producing a material, from agetting the natural resources to manufacturing to product delivery. Reusing materials helps reduce the solid and hazardous waste produced in the manufacturing of new building materials.

A good reuse strategy in remodeling projects is trying to reuse some or all of the original materials or fixtures. For example, refacing cabinets is a cost-effective way to give a kitchen a new look while minimizing waste. You can also find many materials made with recycled content, including glass tile, carpet, and latex paint. Plus, looking for locally produced materials produced reduce your environmental impact by reducing transportation emissions.

What can CRAs do?

CRAs can play an important role in the sustainable building sector by talking to their networks about reducing C&D waste and incorporating salvaging building materials and green building practices into projects. Perhaps your neighbor is in the planning stages of a home remodel and you help them choose deconstruction to salvage materials that would have otherwise gone in the trash. Or maybe your friend is looking to refresh their space and you connect them to unique, salvaged pieces that add character to their project. CRAs can also support the sustainable building sector by choosing to shop for home improvement products at local building-material reuse retailers instead of big box stores and encouraging others to do the same.

Resources

- Hennepin County deconstruction grants: **hennepin.us/deconstruction**
- Hennepin County deconstruction video: **youtube.com/watch?v=gRv-hr0iFeM**
- Building material salvage guide for homeowners (PDF): **hennepin.us/-/media/hennepinus/residents/recycling/documents/building-material-salvage-guide-homeowners.pdf**
- MPCA building material reuse and recycling website: **pca.state.mn.us/business-with-us/building-material-reuse-and-recycling**
- There are a variety of certifications that can help you identify potential contractors for your green remodeling project, including:
    - Certified Green Professional designation from the National Association of Home Builders recognizes builders and remodelers who incorporate green and sustainable building practices into homes.
    - Green Advantage Personnel Certification credentials people who build high-performance, healthy buildings.
    - The North American Board of Certified Energy Professionals PV Certifications is for people working in the renewable energy field such as solar.
    - Certified Green Building Professional from Build it Green teaches the principles of green building and a systems approach to the design, construction, and operation of residential buildings

Chapter 7 | Household Hazardous Waste and Problem Materials

What are household hazardous wastes and problem materials?

Household hazardous wastes and problem materials are unwanted household materials that can be flammable, oxidizing, corrosive, toxic, or reactive or that contain polychlorinated biphenyls (PCBs). These products have a wide variety of uses in your household, but they can harm human health and the environment if not used, stored, or disposed of properly.

Household hazardous wastes are generated from household, not commercial, activities. This can be confusing for businesses run out of homes.

Problem materials are materials that if processed or disposed of with solid waste municipal solid waste will contribute to one or more of the following issues:

- The release of a hazardous substance, pollutant, or contaminant
- Water pollution
- Air pollution
- A significant threat to the safe or efficient operation of a solid waste facility

Included in this chapter

- What is household hazardous waste?
- The concern with household hazardous products
- How to identify hazardous products
- Labels and regulations
- How to safely store products
- Safely disposing of hazardous products
- Reducing harmful chemicals in your home

Household hazardous wastes and problem materials include:

- **Automotive products:** including antifreeze, brake and transmission fluid, fuel, oil, oil filters, and lead-acid batteries
- **Household, lawn, and garden products:** including adhesives, aerosols, batteries, cleaning produces, drain cleaner, fluorescent light bulbs, paint, pesticides, poisons, pool chemicals, thermostats and thermometers (that contain mercury), stains and varnishes
- **Personal care products:** including hair spray, nail polish remover, and perfume
- **Electronics:** including cameras, DVD players, computers, game systems, printers, telephones, televisions, radios and music players, speakers, and video equipment
- **Major appliances:** including air conditioners, dishwashers, microwaves, ovens, refrigerator, stoves, washers and dryers, and water heaters
- Tires

The concern with household hazardous products

We use household hazardous products every day in the cleaning and fixing of our homes, maintaining our cars, and taking care of our lawns. Products such as paint, weed killer, and drain cleaners are okay when we use them up for the job they were intended, but these products can present a hazard to our health and our environment if they are not properly used, stored, and disposed.

Household hazardous wastes represent a small percentage of the waste stream. However, they are of concern to health officials and solid waste planners because, even in small amounts, they can be harmful to people and the environment.

According to the U.S. EPA, only a fraction of registered chemicals have gone through complete testing for human health concerns. Some chemicals have immediate toxic effects. Others are toxic to our bodies only after repeated, long-term exposure.

Exposure to some pesticides, paints, and solvents may produce weakness, confusion, dizziness, irritability, headaches, nausea, sweating, tremors, and convulsions. Repeated exposure to some chemicals can cause cancer or birth defects.

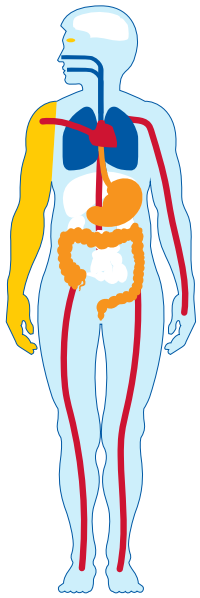
Children and pets are impacted more significantly by the negative effects of chemicals. Pound for pound, children and pets breathe more air, drink more water and eat more food than adults. When children play, they crawl and put things in their mouths. Pets can pick up harmful chemicals on their bare paws, which they can then ingest when they clean their paws. As a result, children and pets have an increased chance of exposure to potential pollutants.

Wastes thrown in the garbage threaten sanitation workers who could be injured by acids and vapors. These can also cause fires and explosions. Hazardous wastes that reach a landfill may ultimately leach into groundwater. Those that go down the drain may cause serious problems for the municipal sewage treatment system or septic systems. Some materials can pass unaltered through public and private treatment systems, polluting rivers and streams.

Because of the potential dangers associated with hazardous products in the home, it is important to know how to identify, properly use, and store them.

Exposure pathways

Chemicals can enter our bodies through a number of "exposure pathways"



Inhalation
Gets into the lungs through the nose and/or mouth.

Contact
Gets on skin, and/or in the eyes, nose or throat.

Ingestion
Gets into the body through the mouth.

Injection
Gets into the bloodstream through a cut or puncture in the skin.

How to identify hazardous products

These days it seems like every product comes with a warning, so you may not pay much attention to the words on the label. However, when it comes to hazardous products, reading the label is the easiest way to identify one.

Signal words

First, look for signal words. Federal law requires labeling of hazardous products by using these signal words. By understanding the difference in the use of the signal words, you can determine how hazardous the product is.

The signal words are listed in order of increasing toxicity, with Caution being the least toxic and Poison being the most toxic. This helps you find the least hazardous product.

Less hazardous

More hazardous

Signal Word	Hazard Level
Caution	Mild/moderate hazard
Warning	Moderate hazard
Danger	Extremely flammable, corrosive or highly toxic
Poison	Highly toxic

Learn the differences in signal words and read labels to help you purchase the least hazardous products. For example, if you are comparing two bathroom cleaners and one product is labeled with Caution and another is labeled with Danger, you know the product labeled Caution is less hazardous.

Characteristic words

Characteristic words indicate the type of hazard posed by a product. These are usually found after the signal word on the label. The accompanying symbols are consistent in multiple languages.

Image	Description
	**Flammable/Combustible:** The product can easily catch fire and support flame.
	**Corrosive:** "Corrosive," "acid," "caustic," "lye," "alkaline" or "causes burns to the skin" mean that the product can burn the skin or eyes. It can also eat away other materials that it comes into contact with.
	**Toxic:** "Poison" or "harmful if swallowed" mean that the product is poisonous and can be harmful or fatal if swallowed, inhaled or absorbed through the skin.
	**Reactive:** "Do not mix with _____" or "store separately from other products" means the product may react violently or produce toxic gas if combined with other substances (examples: certain types of drain cleaners, oven cleaners or products containing bleach, ammonia or lye).

Beware of greenwashing

Greenwashing is a marketing strategy in which companies use tactics to mislead customer into thinking their products are better for the environment than they are.

Watch out for the following:

- **Best in class:** Declaring you are slightly greener than the rest, even if the rest are highly hazardous.
- **Biodegradable:** Products that are biodegradable are not always environmentally friendly.
- **False labels:** Companies often make up certifications and labels for their products that required no verification. See below for validated certifications.
- **Fluffy language:** Words or terms with no clear meaning, such eco-friendly, earth friendly, or natural. There are not regulations defining how these terms may be used.
- **Irrelevant claims:** Emphasizing one small green attribute when everything else is not green. For example: "Does not contain acid."
- **Suggestive pictures:** Using the color green or images that indicate an unjustified impact. For example: flowers blooming from exhaust pipes

Environmentally friendly certifications

- **Green Seal certification:** Products have been assessed for meeting rigorous performance, health and environmental criteria.
- **U.S. EPA Safer Choice:** Each ingredient in the product has been screened for potential human health and environmental impacts. Based on currently available information, the product contains ingredients that pose the least concern among chemicals in their class.

Labels and regulations

Three federal agencies have jurisdiction over the safety of household products that contain hazardous ingredients. These agencies determine what defines a hazardous product and specify how these materials must be labeled to identify their hazards. Product labels can provide useful information about household hazards, but each agency sets different requirements for labeling the products it regulates.

- The U.S. EPA regulates pesticides, including products intended to kill weeds (herbicides), insects (insecticides), slugs and snails (molluscicides), and bacteria (disinfectants), as well as mildew removers and wood preservatives.
- The Food and Drug Administration (FDA) oversees food, medicines, cosmetics, and personal care products. The FDA does not regulate disposal of medicines.
- The Consumer Product Safety Commission (CPSC) covers all other products, including cleaners, non-chlorine bleach, wood finishes and household items not regulated by FDA.

Pesticides

The EPA requires that pesticide labels contain one of three signal words:

- Caution (toxicity category III)
- Warning (toxicity category II)
- Danger (most toxic or toxicity category I)

These signal words represent ranges of acute toxicity or irritation based on oral, dermal, inhalation, eye, and skin irritation hazards. A toxicity category IV pesticide is not required to have a signal word, but if one is used it must be Caution.

Additional requirements include:

- Labels must list specific health and environmental hazards and include first-aid information.
- Labels must identify the active ingredients, which are those that actually repel, confuse, or kill the pest.
- Labels are not required to list "inert" or "other" ingredients, which are those that have a function other than killing the target pest. This term is misleading, however, because it does not mean the ingredients are inert in terms of their effects on human health or the environment. Additionally, these unlabeled ingredients often compose the majority of the product.

Using a pesticide in a way inconsistent with its label is a violation of federal law.

Food, drugs, and cosmetics

The FDA requires manufacturers to list all ingredients in their products in descending order of quantity. Unlike the EPA and the CPSC, the FDA does not use a hierarchy of signal words to indicate hazard levels.

Consumer products

Although the CPSC also uses signal words to identify a product's hazard level, the agency uses slightly different definitions than the EPA.

- Danger signifies extremely hazardous substances and is the highest hazard level.
- Warning or Caution are both used on all other hazardous substances.

Additional requirements include:

- Labels must identify the ingredients that contribute significant hazards, but they are not required to list all ingredients.
- Starting in the 1990s, the CPSC required that products include warnings about chronic health hazards. However, their labels include little or no information about environmental risks or proper disposal.

What's not on the label?

Except in California, product labels are not required to note ingredients that may cause cancer, reproductive problems, or birth defects. Environmental hazards are not listed on most products except on pesticide labels. Additionally, product marketing slogans may mislead consumers about product safety, and these claims are not well regulated.

The Occupational Safety and Health Administration (OSHA) requires that Safety Data Sheets (SDS) be available to workers exposed to hazardous products on the job. These sheets can provide additional information about product ingredients and hazards, but typically they are not readily available to consumers and are not required.

Finally, none of this information is useful if consumers do not read or know how to understand the labels before they buy or use household products.

How to safely store products

Storing products properly can help prevent accidents and extend a product's life.

- Keep products out of reach of children and animals.
- Store all hazardous products on high shelves or in locked cabinets away from food.
- Make sure the lids and caps are tightly sealed and childproofed.
- Store corrosive, flammable, reactive, and poisonous products on separate shelves and keep them dry.
- Store products that say "prevent freezing" (such as latex paint) indoors.
- Never mix products together (such as bleach and ammonia).
- Keep products away from heat, sparks, flames, or other sources of ignition.
- Only buy the amount of product you will use.
- Keep products in their original containers, and make sure the label is legible.
- For long-term storage, place waterproof transparent tape over product labels to prevent them from falling off.

Safely disposing of hazardous waste

Improper disposal of household hazardous wastes and problem materials, such as throwing them in the trash or pouring them down the drain, could harm your family or garbage hauler. Improper disposal may also pollute the air, water, and soil.

To address the household hazardous waste disposal issue, counties operate household hazardous waste collection sites where residents can safely dispose of their hazardous waste, often free of charge.

Hennepin County offers two such drop-off facilities. These facilities are in Brooklyn Park and Bloomington and are open year-round. Both facilities also have free product centers where residents can pick up usable paint, automotive products, cleaners, adhesives and other products for reuse. For more information, visit **hennepin.us/dropoffs**.

To provide a more convenient disposal option, Hennepin County also organizes collection events for household hazardous waste at various sites throughout the county in the spring, summer and fall. Visit **hennepin.us/collectionevents** for more information.

Disposing of medicines

Proper disposal of unwanted and unused medicine is important to prevent accidental poisoning and abuse and protect the environment. Prescription drug abuse is a growing problem, and accidental poisonings from medicines are also on the rise. Medicines flushed down the drain or disposed of in the trash can contaminate water, harm wildlife, and pollute drinking water.

Medicine drop boxes are available for the safe disposal of unwanted and unused medicines. Some are operated by Hennepin County and the Hennepin County Sheriff's Office, others are operated by city police departments, and a growing number are available at independent pharmacies. See all of the drop boxes available at **hennepin.us/medicine**.

Medicines from households are accepted including:

- Prescription medicines including Schedule II-V controlled substances (such as Vicodin, Percocet and Ritalin)
- Over-the-counter medicines
- Pet medicines

Materials not accepted:

- No illegal drugs (Schedule I)
- No needles, sharps or syringes
- No medicines from businesses
- No batteries, trash, medical devices, mercury thermometers or other hazardous materials
- No cosmetics and personal care products

Disposing of needles and sharps

A sharp is any device used to penetrate the skin for healthcare purposes. Sharps include hypodermic needles, pen needles, intravenous needles, used epi-pens, lancets and syringes.

Needles and sharps pose a safety hazard for solid waste and recycling workers. Dispose of sharps safely to prevent injury and disease transmission from needle-sticks.

Never place containers with used needles or syringes or loose needles in a recycling bin or in the garbage.

Use one of the following options to dispose of sharps:

- **Check with your healthcare provider:** Some clinics and hospitals have collection programs for household needles and sharps.
- **Destroy at home:** Devices or containers are available with mechanisms that bend, break, incinerate (destroy with high heat), or shear needles. Disposal after the sharp has been destroyed varies based on the destruction method.
- **Mail-back programs:** Several mail-back options are available.
- **Hennepin County Drop-offs Facilities:** The drop-off facilities in Brooklyn Park and Bloomington accept sharps from households.

See the Green Disposal Guide for more information about each of these options.

Reducing harmful chemicals in your home

You can make simple changes to reduce exposure to toxic chemicals at home by considering the following options:

- Remove your shoes at the entrance to your home so you don't track chemicals from outside throughout your house.
- Use pump spray products instead of aerosols as aerosol mist is more easily inhaled.
- Avoid chemical air fresheners and candles.
- Avoid chemicals used in traditional dry cleaning.
- Buy fewer household hazardous products by avoiding specialty cleaners, using multipurpose cleaners and using single-ingredient products like vinegar or baking soda for cleaning. See our Green Cleaning Recipe Guide for recipes to make your own.
- Use a fabric shower curtain instead of a vinyl as vinyl releases chemical gases.

- Use mercury-free thermometers such as alcohol or digital ones. Take mercury thermometers to a hazardous waste collection site.
- Dispose of hazardous products properly.
- Avoid chemical pesticides and herbicides.

Resources

- **hennepin.us/dropoffs:** Information about the Hennepin County drop-off facilities in Bloomington and Brooklyn Park, including locations, hours, materials accepted and fees.
- **hennepin.us/collectionevents:** Information about household hazardous waste collection events organized by Hennepin County.
- **hennepin.us/medicine:** Information about medicine disposal drop boxes and options in Hennepin County.
- **hennepin.us/green-disposal-guide:** The Hennepin County Green Disposal Guide is a searchable directory of recycling and disposal options for common household items.
- Print resources: order printed copies at **hennepin.us/environmentaleducation**
  - Drop-off facility brochure
  - Reducing hazardous chemicals in your home and green cleaning recipes
  - Medicine disposal program factsheet
  - Safe disposal of needles and syringes brochure

Chapter 8 | Recycling at Events

Residents in the Twin Cities love to attend the wide variety of events held in the metro area. Large crowds turn out for big multi-day events like the Minnesota State Fair, the Uptown Art Fair, and the Hopkins Raspberry Festival. Sporting events and conventions take place daily. There are also numerous homebuyer, job, and home and garden fairs. Farmers markets are held throughout the region on a weekly basis in the summer, and businesses, neighborhood organizations, apartment complexes, churches, and families host picnics, weddings and birthday parties.

Without thoughtful planning, a considerable amount of waste can be generated at events, no matter the size.

Although event organizers may know a lot about coordinating volunteers, presenters, or vendors, they may not know much about setting up a successful waste reduction and recycling program. They may also benefit from someone taking the lead on creating a successful low-waste event.

Included in this chapter

- Before the event
- During the event
- After the event
- Helping to make events low-waste

Before the event

It's never too early to start the planning process for preventing and recycling waste at an event. Start by reviewing what materials can be recycled, consider the barriers to recycling for the specific event, and evaluate opportunities to prevent waste.

Learn about previous recycling and waste prevention efforts the event or organization have taken on, if applicable. Set realistic goals for the event. Start with waste reduction activities that are relatively easy. This is especially important if it is the first time the organizers or the event have developed a waste reduction or recycling plan. You can build on your successes and lessons learned to implement more advanced strategies for future events.

Recycling coordinator role

Recycling coordinator is a good role for CRAs at events. If the event is large, it may be best to have more than one CRA participate.

Duties of the recycling coordinator may include:

- Training volunteers
- Working with vendors and exhibitors before and during the event
- Communicating recycling information to the public before, during, and after the event
- Tracking recycling rates
- Supervising waste audits
- Making signs or picking up signs from Hennepin County
- Monitoring recycling stations
- Troubleshooting during the event
- Sorting bins for contamination
- Transferring recyclables from bins to collection points

Make a waste prevention plan

Eliminating a waste material means you don't have to collect or recycle it. This can result in significant financial savings and environmental benefits. For example, eliminating the "box" in boxed lunches will mean less waste.

An event waste reduction plan should help maximize waste reduction opportunities from both public areas and back-of-house preparation areas, such as kitchens or food prep spaces. Determine what types of materials vendors may be using and how you might work together to reduce waste generated at the event.

Consider the following tips when developing an event waste prevention plan:

- Choose decorations, props, and displays that can be reused. For example, if the event occurs annually, make signs where you can write or post the new date for every year instead of creating entirely new signs. Consider seasonal decorations, like flowers in the summer or pumpkins in the fall, that you can give away to participants.
- Rent or borrow equipment.
- Use technology to reduce paper waste. Use online registration, advertising, documents, and press kits.
- If printed materials are needed, use recycled paper, vegetable-based inks, and print on both sides of the paper.
- Plan for what to do with leftover edible food. Learn about agencies that collect food for people at **hennepin.us/businessorganics**.
- Eliminate packaging as much as possible. Use bulk condiments for jams, honey, sugar, ketchup, and mustard rather than individually packaged servings. Serve snacks like chips, crackers, popcorn, or trail mix in bulk.
- Use refillable or reusable containers and serving products. Serve drinks in pitchers or punch bowls rather than in cans or bottles. Provide reusable cups and mugs for drinks or instruct participants to bring their own.
- Encourage food vendors to use appropriate portion sizing to minimize food waste.
- Use reusable plates, silverware, linens, and cloth napkins.
- Avoid containers that are not recyclable or certified compostable containers. Keep the container options simple to make it easier for attendees to sort later.
- Use edible garnishes or no garnishes.
- Have attendees register to get a head count for meals. Source organic, seasonal, fresh, and local foods and provide vegetarian options.

Plan for organic waste

Organic waste (food and food-soiled paper) is often the most abundant waste material at events. Take the following steps to ensure organics collection at events is done successfully:

- Communicate with vendors about your organics recycling plans and require the use of BPI-certified compostable plates, utensils, and cups (unless the event is using reusable options).
- Create waste stations by co-locating trash, organics, and recycling containers. Use signs, labels, and posters to ensure everyone knows which materials go in each container. Use photos of the materials accepted, or have the actual items affixed to the signs.
- Staff waste areas with trained volunteers to educate attendees on what goes where. This helps to significantly reduce contamination.

Work with the event venue

If your event isn't already tied to a specific location, selecting a venue that already has experience with green event practices is one of the easiest things you can do in planning for a green event. You'll still want to talk through all of the waste prevention and waste management goals and actions with the venue – often things get overlooked and they still have room for improvement. Select venues – both indoor and outdoor – that offer recycling of paper, metal, plastic, and glass. If possible, choose a venue that also offers organics recycling in both public and back-of-house preparation areas. Make sure all organizers, staff, and volunteers understand their roles.

If the event venue doesn't provide trash, recycling, and/or organics collection services, materials can be removed by hiring a hauler or self-hauling.

The Hennepin County drop-off facilities in Bloomington and Brooklyn Park accept organics for free. Several cities also have free drop-off locations for organics. Learn more about these options at **hennepin.us/organics**.

If you need to hire a waste hauler for the event, consider the following:

- What will the services cost?
- Will the hauler donate any portion of the service?
- Can the hauler provide the collection containers?
- Is the hauler able to measure and report trash and recycling data?
- What materials will the hauler accept?

Communicate with vendors

Event organizers can influence waste stream composition by working with vendors and controlling what attendees may bring into the event.

Make initial contact with vendors and exhibitors a few months before the event, if possible, or even farther in advance (six to nine months) if the event is large.

You can include the goals and requirements of the waste reduction and recycling plan in the vendor/exhibitor recruitment information. Or you can prepare an introductory letter to vendors and exhibitors explaining the waste reduction and recycling plan, identifying which items are being targeted, and asking for their cooperation. Find sample vendor letters at **hennepin.us/eventrecycling**.

If you want to avoid certain materials (such as single use items or swag), you could require that vendors not sell certain items or packaging. Provide suggestions for alternatives to common throw-away items, especially if you are banning any materials from the event.

Provide vendors with information on how to recycle materials that they have brought with them, such as cardboard boxes, or ask them to take those materials with them.

Publicity

Make event attendees aware of your recycling efforts by integrating the recycling/waste prevention messages into all event materials and promotions. Let attendees know what they can do to help reach the event's waste reduction and recycling goals.

During the event

Maximize collection and reduce contamination of recyclables by adhering to the following guidelines:

Waste stations

- Set up recycling bins and waste stations the day before the event, if possible.
- Place recycling, organics, and trash containers together.
- Make waste stations highly visible by using a flag or banner on a tall pole, signs, etc.
- Locate recycling stations in convenient, high-traffic areas.
- Limit the number of recycling/waste stations to allow for ease of monitoring. Place larger stations in areas where high volumes of waste will be generated.

- Label recycling and garbage containers with clear, large, and specific wording. Signage should be placed at eye level. If possible, attach a physical sample of the acceptable material to its container. This is especially important for any confusing items, such as recyclable or compostable plastic cups.
- Use clear plastic bags as liners for recycling bins for easy identification and removal of contaminants.

Volunteers and vendors

- Greet vendors and exhibitors during set up. Provide clear instructions on how to recycle at the event and who to contact (the recycling coordinator) if they have questions.
- Use walkie-talkies to communicate with the recycling coordinator, key volunteers, and event organizers at large events. At least one volunteer per waste station should be recruited.
- Volunteers may need to be scheduled in shifts, depending on the length of the event. A good length for volunteer shifts is two to three hours.
- Staff all recycling stations at all times. If this is not possible, assign a floater to check each area periodically. This staff/volunteer will remind attendees how and where to place materials and remove contaminants from recycling on a regular basis. Provide gloves and grabbers to your waste station monitors so they can easily move items placed in the wrong container.
- Make recycling volunteers easy to identify by having them wear hats, vests, T-shirts, nametags, aprons, or something else that designates them as recycling or green team volunteers.

Waste disposal

- Plan to empty bins often, especially during the summer when wasps and odors can discourage recycling.
- Designate a central collection area for garbage and recycling where drop boxes or dumpsters are staged. This area can serve as a place for recycling volunteers to check in, sort materials if needed, and observe the material flow.
- Use hand trucks, carts, or gators (mini-trucks) to transport material from the recycling stations to the central collection area.

After the event

Tear down and clean up

Materials will continue to be generated during cleanup. Assist vendors with tear down. Complete and/or confirm final sorting and pickup of garbage and recycling. Make sure that any uneaten food designated for donation is picked up or delivered to the recipient organization.

Evaluation

Ask for feedback and suggestions from everyone involved in the event including organizers, volunteers, vendors, exhibitors, and haulers.

Calculate the recycling rate

The recycling rate is the percent of materials diverted. This is a good measure of the event's success. To calculate the recycling rate, you need to be able to compare recycling with the waste generated. Ensure ahead of time that your process will allow an accurate comparison between the garbage and recycling.

For example, sometimes groups state, "we had one garbage can and three bags of recycling." This statement does not give a clear evaluation because it is unknown how big the garbage can was in comparison with the bags of recycling.

Calculate your recycling rate using the following formula:

Recycling rate = weight recycled/waste generated (weight recycled + weight disposed).

For example, if an event recycled 5,000 pounds of material and disposed of 3,000 pounds of material, the total waste generated was 8,000 pounds, and the recycling rate would be 62.5 percent (5,000/(5,000 + 3,000) = 62.5 percent).

If your hauler/recycler can weigh your garbage and recycling, follow up with them for final weights. If your hauler is not able to weigh your garbage and recycling, you will need another plan for evaluating your recovery rate.

One option is to calculate your recycling rate using volume as your base with the following formula:

Recycling rate = cubic yards recycled/(cubic yards recycled + cubic yards disposed).

1 cubic yard = 201.97 gallons

For example: if an event recycled three 90-gallon roll carts full of cans and bottles (90 x 3 = 270 total gallons). The hauler provided a 2-yard garbage container and it was half full.

First convert the recycling to yards (201.97/270 = .748 yards of recycling).

Then calculate your recycling rate: .748 yards recycled/(.748 yards recycled + 1 cubic yard disposed) = 43 percent recycling rate.

Publicize the recycling rate along with the results of waste prevention efforts. Thank your donors, sponsors, volunteers, exhibitors and vendors with a card or a post-event celebration and share the recycling rates and waste prevention results with them.

Helping to make events low-waste

CRAs can help event organizers make their events greener by creating and implementing a waste reduction and recycling plan. Whether you are organizing a party, wedding, or family picnic or have signed up to help a community organization, the goal of this chapter is to provide the tools, resources and best practices necessary to successfully plan recycling programs and implement other green event practices.

A great use of your CRA knowledge is offering expertise in waste reduction and designing successful recycling systems at events. Some ways to help include:

- Strategizing, organizing, implementing, and evaluating waste reduction and recycling plans for events. This could include identifying ways to reduce waste, deciding what materials can be recycled, and setting waste reduction and recycling goals.
- Training and supervising volunteers who have been recruited to help with the waste management program.
- Designing outreach materials and messages to participants about why they should recycle and what materials are accepted.
- Monitoring recycling and organics containers (eligible for a maximum of 10 of your 30 payback hours).

Some work that is necessary for a successful event does not fit the educational requirement for CRA payback. Hauling trash is not an appropriate primary role for a CRA. CRAs are also not expected to recruit volunteers – this should be the responsibility of the event organizers.

To ensure a successful partnership, meet with the event organizers to clearly define your role in the event planning. Define the tasks you will and will not take responsibility for. You should also come to an agreement on the recovery goals for the event.

Resources

- **hennepin.us/eventrecycling**: Resources for event planners, including an event waste reduction and recycling guide, downloadable signs and vendor letters, and links to connect you with portable event recycling containers.
- Print resources
  - Green event checklist: Guide for planning larger green events.
  - Green party checklist: Guide for planning smaller green parties.

Chapter 9 | Engaging the Public and Motivating Behavior Change

Congratulations! You're about to complete the Community Recycling Ambassador course. The formal training is just the beginning of your experience as a CRA. Your next step – completing 30 hours of volunteer activities – will take you from a classroom learner to community ambassador and advocate for waste prevention, recycling and composting.

Hennepin County has made significant progress in the years since recycling was introduced, but our work is far from done. The state and the county have set ambitious recycling goals, aiming to recycle and compost 75 percent of waste by 2030. Our ability to meet our goals depends on the choices and actions of residents, businesses, organizations, and institutions throughout the county. CRAs play an important role in engaging and motivating the public and implementing successful waste prevention and recycling programs.

Even with the knowledge you have gained in this course, you may be apprehensive about educating the public. The tips included in this chapter and some experience in the field will help you gain confidence when discussing waste prevention, recycling, and composting with a broad range of people.

Included in this chapter

- Motivating behavior change
- Doing outreach at events
- Volunteer guidelines
- Outreach activities
- Resources for CRAs

Motivating behavior change

A common mistake that people make when they start a program to motivate action around environmental issues (or any issue that requires behavior change) is thinking that by simply providing people with information will be enough to get them to change. But we can all think about an action that we know quite a bit about and think we should be doing but for some reason aren't doing it yet.

Motivating behavior change requires more than just information sharing. To be effective, we need to understand our audience, the barriers they face to taking action, and what would motivate them to take that action.

In order for people to take action, they need to:

- Value the action. Why they value an action will vary – they may value environmental protection, the benefits it provides to society, or the benefits it provides personally.
- Know enough about the issue and understand the consequences to themselves and the people and places that matter to them.
- Believe they are capable of taking the action and that the impact their effort will have is worthwhile.

But still, whether or not they take the action depends on the scale of the barriers they face.

In order to motivate behavior change, we need to:

- Determine what action we want people to take.
- Figure out what stand in the way of them taking action.
- Uncover what would motivate them to take that action.
- Choose and implement effective strategies to address the barriers and motivate action.

Selecting behaviors

The actions you encourage people to do should be specific, directly result in environmental protection, and impactful to both your audience and the environment.

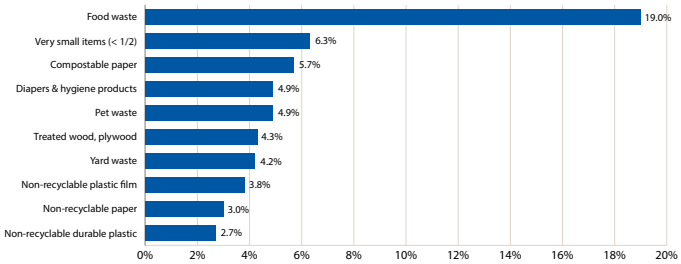
To choose a specific behavior, think beyond a general topic, like preventing waste, to specific actions within that topic people could take, such as avoiding single use plastics, mending or repairing household items, using reusable items instead of disposables, shopping at reuse stores, and so on. It's best if you get even more specific. For example, instead of focusing on using reusable items, decide if you're focusing on reusable bags, reusable water bottles, reusable napkins, reusable straws, etc. Each of these specific actions will have different barriers and motivations for your audience.

The behavior you choose should also be "end-state," or result in the direct environmental benefit you're looking to achieve. For example, if you are focusing on getting people to compost in their backyard, it's not enough to get people to purchase a compost bin. They have to put the bin together, find a place for it in their yard, actually start composting their kitchen scraps and yard waste, and use the finished compost they create.

You should choose behaviors to focus on that are impactful for both the environment and your audience. Considering the impact is helpful if you're trying to decide which behaviors to focus on.

For environmental impact, determine which actions will have the greatest environmental impact by considering any data you have or can collect or doing research on data that others have collected. For example, Hennepin County is focusing on expanding organics recycling and preventing food waste because waste sort studies show that food waste is by far the largest proportion of the trash.

Top 10 most common materials found in the trash



For audience impact, consider how likely it is for your audience to take the action and how many people are already taking the action. You want to focus on actions that your audience is likely to be interested in taking but aren't already doing.

Identifying barriers and benefits

Once you've selected an action, you need to find out what stands in the way of your audience taking this action (barriers) and what would motivate them to take this action (benefits).

It's easy to assume you know what the barriers and benefits are, but it's important to ask your audience. Even having a few simple conversations can be eye-opening and help you develop a truly effective plan.

There are many ways to figure out barriers and benefits. You could conduct a survey, bring people together for a focus group, discuss the issue one-on-one in an interview, observe people taking the action, or conduct research into what others working on your selected behavior have found.

It's important to remember that barriers and benefits will vary based on your selected action and your audience's knowledge, experience, values, and interests. However, there are some common themes when it comes to barriers and benefits.

Some benefits commonly heard related to waste issues include:

- Visibly seeing the impact of their actions
- Protecting the environment
- Helping future generations
- It's the right thing to do
- Getting a "feel good" benefit
- Saving money
- Having less stuff to deal with

Common barriers to taking action include:

- Intending to take the action but needing motivation
- Not caring about the action
- The action sounds hard, time-consuming, or messy
- Confusion or lack of information
- Forgetting to act
- Lacking skills
- Not having the infrastructure or tools to take action

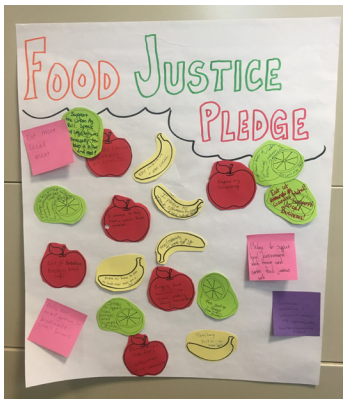
Strategies to motivate behavior change

Once you know the barriers your audiences faces and what would motivate them to take your selected action, you can develop strategies that will be effective in creating change. Research on human psychology and behavior change suggests the following strategies are effective:

- **Make it easy to act:** The more convenient an action is, the more likely people are to act. Develop infrastructure, promote best practices, and provide the tools people need to take action. Providing color-coded, clearly labeled recycling bins, recycling guides, and individual bags or bins for people to collect recycling are good examples.

- **Develop skills:** Social anxiety or feeling incompetent can prevent people from taking action. Engage people in hands-on activities that give them the opportunity to learn the specific steps needed to take action. Provide a safe space for people to try an activity and ask questions. Conducting waste sorting activities, hosting composting workshops, teaching people how to make green cleaners, and teaching repair skills at Fix-It Clinics are all good examples.

- **Build commitment:** People want to be consistent – if we say we are going to do something, we feel compelled to follow up and do it. Commitments are a good way to nudge someone to finally take that action they've been thinking about doing. You can used written, verbal, individual, public, or group commitments. Invite people to fill out and return a simple pledge form identifying one or more actions they commit to take, or have people share the actions they are pledging to make on a poster or in an online forum. Following up to see if someone has taken the action or needs additional help strengthens the commitment and the likelihood of someone taking action.



- **Create social norms:** The actions of individuals are influenced by others and the desire to be socially accepted (way more that people will typically admit). Social norming involves using messages and setting expectations that let people know "this is how we do things." For example, when working at a business, school, or apartment building, use announcements, posters, buttons, lawn signs, and more to send the message that taking actions to prevent waste or recycle more is the norm.
- **Use social diffusion:** People make decisions based on the actions and recommendations of people or experts they know and trust. Train-the-trainer programs like the CRA program are good examples of social diffusion. Look for opportunities to train and empower community leaders and early adopters to spread the word, be a champion for your program, and engage others in getting excited and taking action. Get commitments from them to talk to others.

- **Use prompts:** Prompts serve to remind people to take an action they intend to do. Prompts help overcome the issue that we often operate on auto-pilot as we go about our daily routines. Realizing you forgot your reusable bags only once you get to the checkout counter is a prime example. Providing a "remember the bag" prompt close to where people store their bags is a good way snap them out of their routine and remember to bring their bags. Provide a visual reminder, such as a sticker, window cling, or flyer, that reminds people to act. If you're asking people to take a pledge, think about how they could take home a reminder of the commitment they made.

- **Capitalize on trigger and major life events:** People can be more receptive to integrating new habits at times when they are already going through changes and switching their routines. Some major life events to consider include when people are moving, changing jobs, getting married, or having kids. Big events like Earth Day or an annual celebration at a business, organization, or school are also good opportunities to provide information about environmental issues and lead-by-example by modeling waste prevention and recycling strategies.

- **Celebrate successes:** Publicly announce your goals and take time to celebrate successes. This is a good way to build momentum for future change. Set interim goals for your program or campaign and acknowledge when you've achieved those milestones.

Create effective communications

Although sharing information typically isn't enough to motivate behavior change, communications will no doubt be an important part of any program or campaign. Use the following tips to improve the effectiveness of your communications:

- **Make it attention-grabbing and easy-to-remember:** Use simple language, catchy phrases, easy-to-follow instructions, and helpful visuals.
- **Integrate goals and impact:** Let your audience know what you are trying to achieve and what impact they can have by taking action.
- **Make it personal and local:** Include information specific to your community. What is the problem and what impact will the changes have locally? Encourage people to share their stories, and feature people in the community taking action. Stories help engage people and show them how the issue is relevant.
- **Use credible sources:** The more credible the source is viewed to be, the more likely the message will be influential. The information provided through your training and in this manual is a good source as it has been fact-checked.
- **Make it concrete and actionable:** Let people know what you want them to do and how they can get involved. Provide the information they need to take action.
- **Help people address barriers and plan for action:** Having a way for people to discuss their barriers, troubleshoot problems, and plan for taking action will increase their chances of actually taking action. Focus on improvement, not perfection.
- **Use all of your channels:** Messages have a better chance of getting people's attention when shared in multiple ways. Consider all of your communication channels and touchpoints with your audiences and make a plan to distribute the messages everywhere you can.

Doing outreach at events

Events can be a good opportunity to share resources and connect one-on-one with your audience. The following tips will help make your event outreach a success.

Preparing for the event

Learn about the event and the audience. Ask the event organizer how many people they expect to attend, what kind of crowd the event attracts, and why they attendees are coming. All of this will impact the materials and activities you bring.

Identify your key messages. It's useful to focus your outreach on one or two topics instead of trying to cover everything. Prepare some "opening lines" to introduce attendees to the information you have to share. Review background information about the topic you are providing information on and consider the questions you may receive so you are prepared to answer them.

Bring props and interactive displays. Having materials attendees can look at and interact with will make your table more engaging than simply having brochures and factsheets.

Arrive at the event early so you have plenty of time to set up. Always bring paper weights for outdoor events, even on non-windy days. It takes only one gust to scatter your literature all over the place.

Bring water and snacks to keep you fueled – hopefully you'll be talking a lot.

During the event

Be enthusiastic and engaging, and let people engage how they want. Some people will want to browse the information you have available before asking questions, while others will jump straight into a conversation.

Stick to what you know. It's ok not to know everything! Be aware of credible sources of information to point people to if they ask a question you don't know how to answer.

Keep your table tidy and organized through the event.

In your conversations, help people problem-solve and plan for action. When you can, try to get to what their barriers are to taking action and develop solutions together that will work for them. All of this will increase their chances of taking action.

Most importantly, have fun! Event outreach should be a rewarding way to share your expertise and get other people excited about these issues.

Volunteer guidelines

CRAs have many opportunities to help educate the public about waste prevention, recycling, and composting. How you spend your 30 hours (or more!) of volunteering is up to you.

Hennepin County depends on your important volunteer work and makes a significant investment in your training. In turn, Hennepin County expects CRAs to attend all training sessions and to fulfill the 30-hour volunteer commitment within one year (ongoing involvement is encouraged). Fulfillment of the expected volunteer time is required in order to become a certified CRA. Be sure to report your volunteer hours promptly after completing a volunteer activity.

Eligible volunteer opportunities

The program coordinator will provide many outreach opportunities from community organizations, cities, and other CRAs that you can sign up for, or you can develop your own projects with prior approval. Find out how to get notified of volunteer opportunities at **hennepin.us/current-recycling-ambassadors**.

Payback activities must meet the following criteria:

1. Implement or support a system or program that diverts materials from the waste stream.

AND/OR

2. Provide waste reduction, recycling and/or organics recycling education/outreach

When fulfilling your volunteer hours, remember:

- Be on time to events and obligations. If you need to cancel, contact the volunteer coordinator as soon as possible.
- Represent the county professionally and appropriately at outreach events. Personal opinions and editorial comments should not be expressed when volunteering as a CRA. Remember, you are an information ambassador for Hennepin County, so stick with the information provided in the training and through subsequent updates from the CRA program.
- Target your presentation and your language to the level of knowledge of your audience. Avoid jargon and overly technical material, but be careful not to oversimplify the issues.

Reporting your hours

Tracking volunteer outreach time is a vital part of the CRA program. It helps the volunteer coordinator know your activities and provides an official record of progress toward your 30-hour volunteer time commitment. This information also helps Hennepin County track the work and recognize the benefits of the CRA program.

We also count on you to let us know about upcoming events where CRAs could help spread the word about recycling, waste prevention, and composting.

Please remember to report your hours regularly by completing the form at **hennepin.us/current-recycling-ambassadors**.

Outreach activities

CRAs educate the community through a variety of activities. Common activities include staffing informational tables ("tabling") and giving presentations. This section provides information to help you effectively promote your outreach message.

Information tables

Tabling, or staffing an informational booth, is one of the most popular and effective ways that CRAs reach and motivate people to reduce waste. Some CRAs sign up for tabling assignments that the program coordinator sets up. Others find events and arrange for booths in their own communities. Some work with ready-made, topic-specific kits, while others like to create their own displays.

Whatever the approach, here are some basic tips that will make your tabling outreach more successful:

- Before you arrive, identify key messages to include in every conversation. Stay on message when you're not answering individual questions. Keep your messages positive.
- Always wear your name badge for CRA projects.
- Don't just sit there; do something even if the event is slow. Make eye contact as people pass by. Displays and literature are meant to assist you to communicate – not do it for you.
- If you're working with a partner, take turns answering questions so that both of you get to interact with the public. Don't jump in when it's not your turn unless your partner asks you to.

- When signing up for an information table arranged by the CRA program coordinator:
  - Instructions for the event, including location, directions and the topic, will be sent to you.
  - You may be asked to pick up and/or drop off materials and a display.
  - You may table with staff from Hennepin County or other organizations. This is a great way to start out and learn, and it's also a chance to network with people working in the field. If you like working with them, you can give them your contact information and ask them to contact you directly when volunteer opportunities arise in their jurisdictions.
- You'll often work shifts with fellow CRAs.

Some CRAs may adopt a local event or farmers' market and cover different topics each week. Some create their own topics and displays, while others check out the displays that are available throughout the region.

When arranging a table yourself, check with the event coordinator ahead of time to ask:

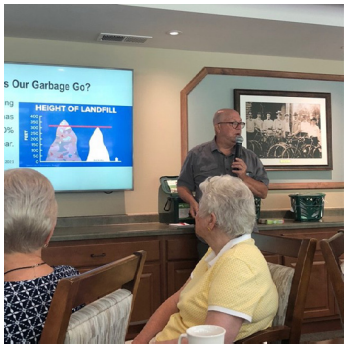
- Does it cost money? If it does, do they offer a reduced rate or waived fee for non-profits?
- Do they provide a table and chair, and do they provide a canopy or tent for rain and sun?
- Where exactly is your space, and how large is it?
- Will you be expected to share a space?
- How many people attend this event?
- What languages do the audience of this event generally speak?

Here are some pointers to make your table more successful:

- Check with the CRA program coordinator to ensure there isn't already a CRA working in the venue or at the event. The coordinator may also have contact information for organizers of the event. Consider sharing a table with a Master Gardener if they already participate in this event.
- Review the list of materials and learning trunks that are available to CRAs.
- Make sure that your display, information and literature are correct for the jurisdiction that the event takes place.

Presentations and demonstrations

CRAs who want to make changes in their workplaces, multifamily housing buildings, religious organizations, or other community organizations often find that in-person or virtual presentations is a persuasive method. Some CRAs enjoy sharing their knowledge and passion for waste reduction in presentations and demonstrations, while others find the idea intimidating. Whatever your comfort level, we encourage you to try it!



You're welcome to call the program coordinator for advice, to rehearse your speech, or just for a confidence boost. Most people who take on the challenge of giving a presentation find it very rewarding. As with tabling, some presentations are prearranged by the CRA program manager, or you can set them up on your own. The following are some tips to make your presentation more successful.

Questions to ask the event coordinator ahead of time:

- What is the exact location and time of the presentation? (If needed, ask for directions.)
- How many people are expected to attend?
- Should I provide information and handouts in languages other than English? Will interpreters be provided?
- Will I have access to a table, electrical outlet, and power cord? (if needed, such as when using PowerPoint) Is a laptop and/or projector provided, or do I need to bring my own?

Presentation preparation:

- Keep it simple. Use PowerPoint presentations only if you have a table, projection surface, reliable equipment, and access to electricity.
- Review the list of materials that are available and select handouts to supplement your presentation. View and order the free resources available at **hennepin.us/environmentaleducation**.
- Consider checking out a learning trunk to use as a visual aid.
- Practice with someone you know using the visual aids. Time yourself to make sure you are working within the time allotted (be sure to leave time for questions).
- Arrive early to have plenty of time to set up and familiarize yourself with the setting.

Presentation content:

- Start with a strong beginning. The first few minutes are important to capture audience's attention.
- Use real experiences that people can identify with rather than loads of statistics.
- Keep it positive. Studies show gloom and doom/end-of-the-Earth messages discourage people rather than motivate them to take action.
- Use an outline and key messages rather than trying to memorize a speech word for word.
- Think about what will encourage this particular audience. Parents at a PTA meeting will have different interests (e.g., packing school lunches) than people attending a discussion at a senior center (e.g., effective food storage).

Interactive communication

Whatever the type of outreach, open dialog is often more compelling than talking points as an approach to social change. Hence, the most important part of your presentation may be a question and answer period after your talk.

You probably cannot cover all of the concerns or burning issues that your audience may have in your presentation. Opening your presentation to dialog will help you better understand and address some specific concerns that may be preventing your audience from making important changes.

The following guidelines will help you conduct a successful Q&A session:

- When you practice your presentation, ask your "audience" to ask some questions.
- Listening is the most important part of communication. Be sure to pay attention and address exactly what the person is asking. If someone asks, "Why can't we put plastic bags in curbside programs?" don't respond with, "You can recycle plastic bags at these locations…" They'll still wonder, "Why not at the curb?" Answer the question before you offer solutions.
- Review any sections of the manual that pertain to your topics. Many chapters cover common questions.
- Don't be afraid to say, "I don't know." As a CRA, you know a lot more than the general public, but we don't expect you to know everything! What you can do is direct people to good sources of information. This is a key function of CRAs.

Audience participation is another tool you may want to integrate into your presentation. Interaction often helps individuals test new ideas, clarify their thinking, and develop skills for solving problems and resolving issues. As the presenter, you must provide the direction and keep discussion focused on the topic.

Strategies you might use to generate audience participation:

- Creating action plans
- Discussions (in smaller groups)
- Introductions with name games
- Role playing
- Show and tell (sharing personal stories)
- Skits
- Solving story problems
- Tours or field trips
- Quizzes

Visual aids

Visual aids can be very helpful to use at events and in presentations. They attract and hold attention, illustrate points, clarify information and aid in remembering facts. Your visual aids may be real objects, pictures, words, or symbols. To be most effective, visual aids should be:

- Colorful
- Easy-to-understand
- Large enough to be seen by all
- Simple
- Neat
- Relevant to your topic

Individual project planning

When planning an individual project, use the following questions to guide the development of the project:

- What are the project goals?
- Who are the project partners?
- Who will this project target?
  How will they be included in the development of the project?
- What resources will be needed (time, additional volunteers, materials, etc.)?
- How will you know if your project is a success?
- What criteria will you use to measure your project's effectiveness?

Resources for CRAs

When you volunteered to become a CRA, you made an active commitment to decrease waste in the region. But you are not making this commitment alone. Hennepin County staff is available to help you and will continue to provide and maintain the following resources:

- Training manual: This is a ready reference for a variety of ideas and data. New editions that are revised and updated for each class will be available at **hennepin.us/current-recycling-ambassadors**.
- Community Recycling Ambassador Facebook group: The group has volunteer opportunity postings and a forum for you to network and have discussions with fellow CRAs.
- CRA newsletter: The newsletter includes deeper dives into waste issues, CRA project highlights, Hennepin County program updates, upcoming events and training opportunities, and links to interesting news articles.
- CRA web page: **hennepin.us/current-recycling-ambassadors** is only accessible to CRA participants and contains class presentations, the training manual, past editions of the CRA newsletter, and the hours reporting form.
- **hennepin.us/environmentaleducation:** The county provides downloadable newsletter articles, social media posts, and images along with an order form to get printed copies of factsheets, brochures and handouts. The county also has activity guides for conducting education with a group and education kits that provide the supplies needed to conduct activities or create a display for events.
- Ongoing education and training opportunities: These will be posted to the CRA Facebook group and included in the newsletter.
- Industry and Hennepin County staff contacts to assist with difficult questions.
- Fellow classmates. You are encouraged to network with your peers.

Resources

- **cbsm.com:** The Fostering Sustainable Behavior website provides information about the method for motivating behavior change, also known as community-based social marketing. The website includes the full text of the Fostering Sustainable Behavior book plus articles and case studies.
- The Psychology of Sustainable Behavior: A handbook introducing research-based tips from psychology to help in efforts to empower sustainability. Find it at **pca.state.mn.us/sites/default/files/p-ee1-01.pdf**
- **toolsofchange.com:** A collection of social marketing case studies.
- **hennepin.us/environmentaleducation:** Communication, outreach, and environmental education resources available from Hennepin County.

Thank you for becoming a Community Recycling Ambassador.

We look forward to supporting you in your outreach endeavors!