



MATERIALS & WASTE

For many, the triangular recycling symbol of three arrows chasing one another evokes the idea of sustainability. Submitted for a contest in 1970, shortly after the first Earth Day, it persists as a symbol representative of our hope for a regenerative economy and society. The reality of modern waste management falls short of this hope. Indeed, the ways in which we dispose of our waste are often the most visible and tangible evidence of our stewardship, or lack thereof, of the planet and its resources. We live in a linear economy. Our waste products begin as raw materials which are extracted from the earth, processed into products, and sold to consumers. Upon deeming those products no longer useful, we dispose of them by sending to either landfill or recycling facilities.

Mid-20th century developments in plastic production and a cultural shift away from war-time austerity helped set the stage for the consumption and disposal habits that have persisted through the early 21st century. In this time, many humans in developed nations have learned to believe disposability, of a product or its packaging, is an inherent convenience. Obsolescence, both perceived and planned, is engineered into many consumer products to drive further consumption. Pairing this with the ability to send waste to a distant location, out of sight and out of mind, psychologically enables further material consumption and disposal of waste.

Not only does our linear system of taking, making, and wasting fail to embody the regenerative philosophy of the three-arrow recycling symbol, it represents a perversion of natural cycles. For centuries, humans have been surrounded by examples of circular systems. Minnesota's Northwoods contain numerous plant and animal species, all of whom participate in the cycling of nutrients through the ecosystem. A red pine, for example, takes up nutrients from the soil throughout its life, which it then returns to the soil through the help of fungi and insects after its death. Waste is not in the lexicon of circular systems because the outputs of one process become the inputs of another. Unfortunately, the linear systems we have constructed produce staggering volumes of waste. Our attempts to manage this waste, by creating landfills or incinerating refuse, often negatively impacts marginalized populations. In this way, focusing on the materials we use in daily life and how we manage them upon their end-of-life is another strategy for building a more socially equitable and just society.

From an Indigenous perspective, the concept of "waste" seems strange. Everything in Creation has a purpose and a value. While it might not be valuable to us, the two-leggeds, it could be valuable to our better-than-human relatives. Because of this, we must respect all things. We must keep them clean, try to repair them when they are broken, and allow them space to exist in a good way.

Imagine if we saw our actions as disrespectful when we threw something in the garbage! What a different world we would create.

Deconstructing harmful habits and perceptions our society has learned over the last half-century will require more than an iconic symbol and encouragement to recycle, though. As an influential setting of post-secondary learning and workplace interactions, Bemidji State is well positioned to lead in this effort. As one of the region's largest employers, efforts to embed an ethic of resource conservation into workplace culture has a substantive opportunity for change. As a formative setting for young adults to establish lifelong habits, the institution has an opportunity to be the epicenter for a world of positive change. The University's Shared Fundamental Value of Environmental Stewardship suggests substantive action should be taken to enact a cultural shift away from consumption and toward conservation; away from single-use and disposable toward a culture of reuse. Doing so will help undue the detrimental outcomes brought about by the fallacies of recycling and convenient disposability.

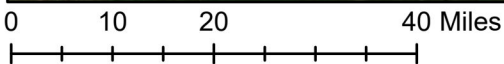
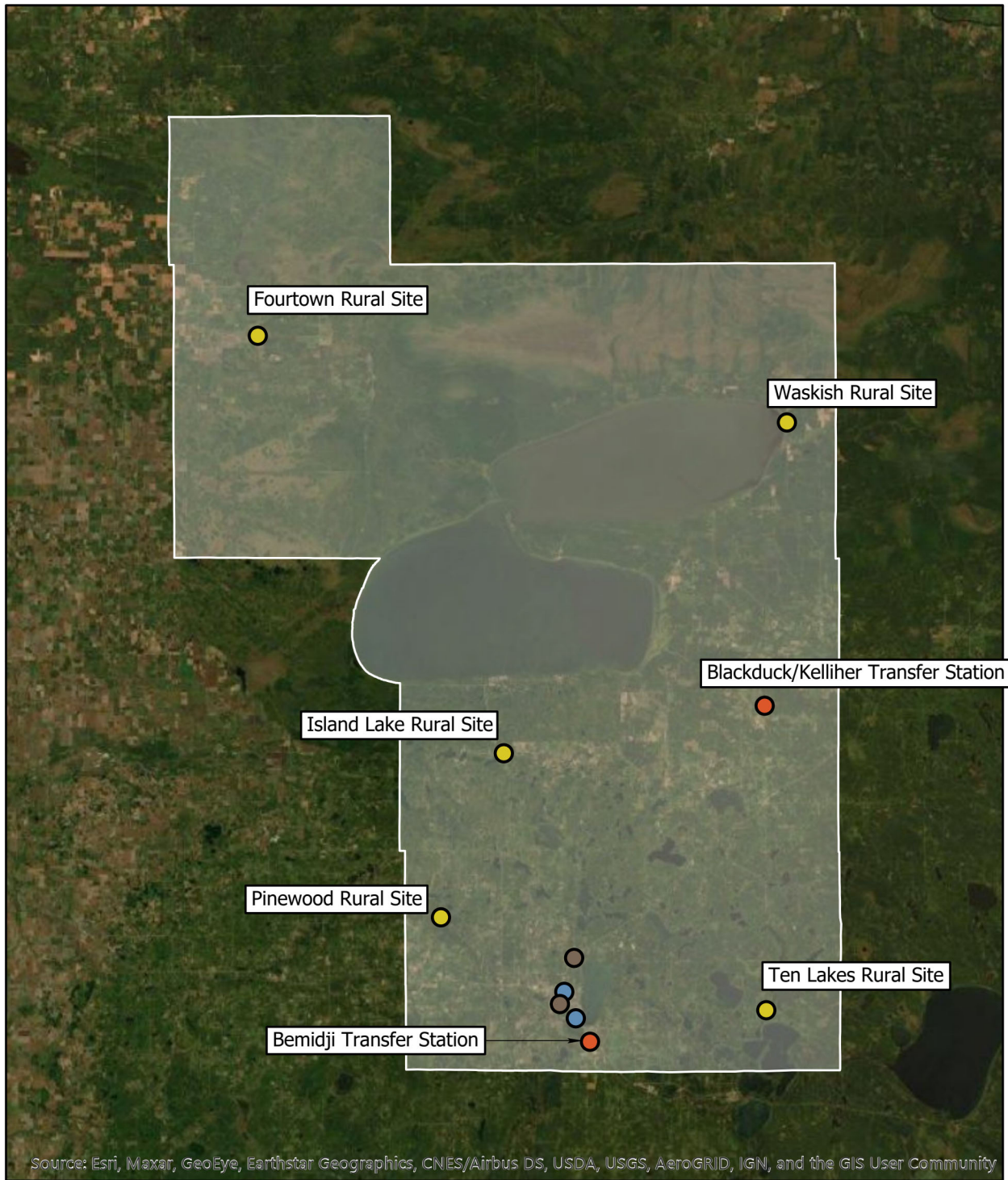
LANDFILL / RECYCLING CAPACITY

Across the country landfills are filling up, fueled by the 292.4 million tons of municipal solid waste produced by the US each year (EPA 2022). As our communities grow so does the amount of waste they produce, and the way that waste is managed has implications on public health, environmental quality, and quality of life. Municipal solid waste (MSW) impacts carbon emissions, and can pollute the air and ground water. Therefore we must pay attention to waste management, and to identify opportunities to decrease the amount of waste sent to landfills, and recycle whenever possible.

The Beltrami county website highlights how proper waste management begins with recycling. While many residents in the Bemidji area see recycling as an important step to support sustainability, without access to the proper resources many of those efforts fall into the category of "wishcycling." Wishcycling occurs when something is put in the recycling bin hoping that it will be recycled without any knowledge that it will be. Putting non-recyclables in the recycle means that someone else will have to sort through and dispose of those items. Wishcycling does not remove waste from the waste stream, it just makes it harder for items that are recyclable to be recycled.

Like all communities, Bemidji must maintain an awareness of the waste stream in relation to local landfill capacity and reduce waste wherever possible. Recycling is a great way to reduce the waste going to the landfill but it is only successful when the waste is turned into something new. Intentional waste management efforts are critical to reduce waste and protect local environmental quality and support high quality of life for all.

BELTRAMI COUNTY WASTE OPERATIONS

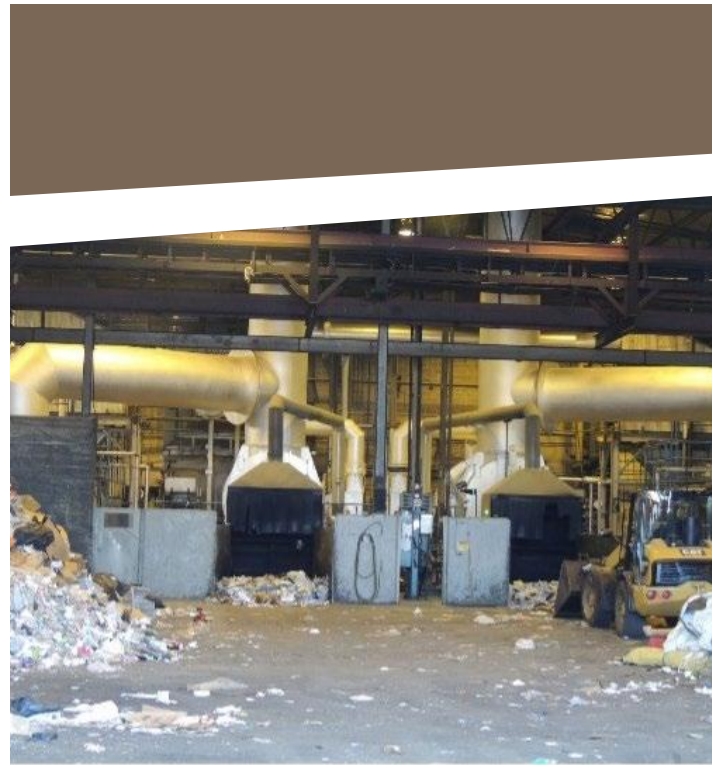


- Residential Waste, Recycling, and Hazardous Waste Drop off sites
- Residential Waste and Recycling Locations
- Recycling Drop Off Locations
- Drop Off sites for Unused Medications and Pharmaceutical Products
- Beltrami County

Andrew Miller
January 12, 2022
Source: Beltrami County

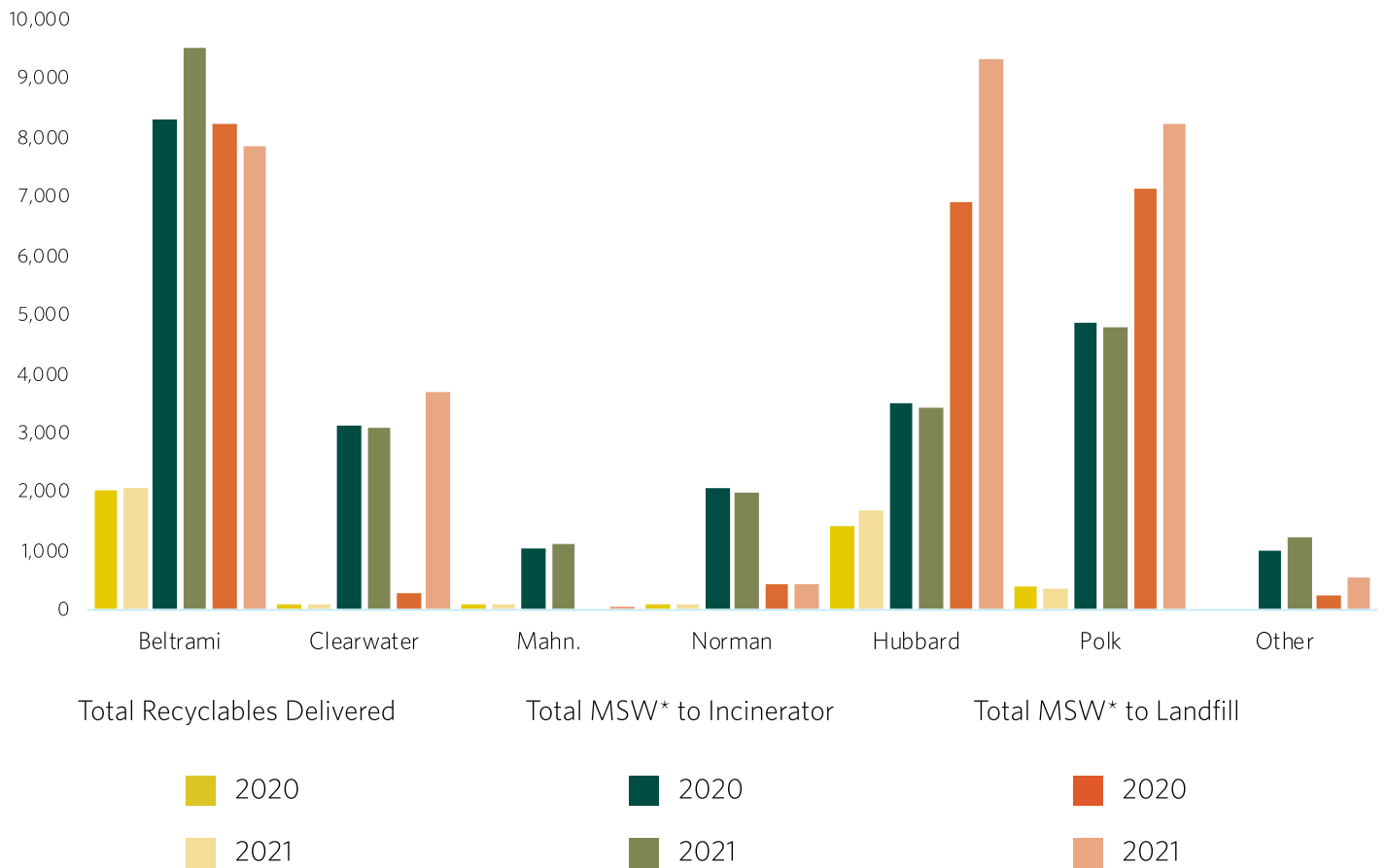
COMMUNITY WASTE CONDITIONS

Beltrami County participates in a regional integrated solid waste management program with the adjoining counties of Clearwater, Mahnomen, Norman, and Hubbard. Polk county rounds out the partnership, with the city of Fosston serving as home to a waste-to-energy (WTE) incinerator (built 1988) and Material Recovery Facility (MRF) recycling center (built 1996, expanded 2018). The former burns municipal solid waste (MSW, or non-recyclable trash) in two 40-ton per day combustors which, as of 2021, generate steam for three commercial customers and electricity via a steam turbine generator. The WTE facility operates within permitted limitations set forth by the Environmental Protection Agency (EPA) and Minnesota Pollution Control Agency (MPCA). Municipal solid waste not burned is deposited in a solid waste landfill in Gentilly, approximately 8 miles east of Crookston, MN. The MRF sorts recyclable material from the MSW stream through a series of sorting mechanisms. Due to a lack of recycling end markets, however, only a subset of materials typically associated with recycling programs are being actively recycled through the six-county management program. Existing conditions of regional recycling efforts will be explained below.



Polk County waste-to-energy incinerator

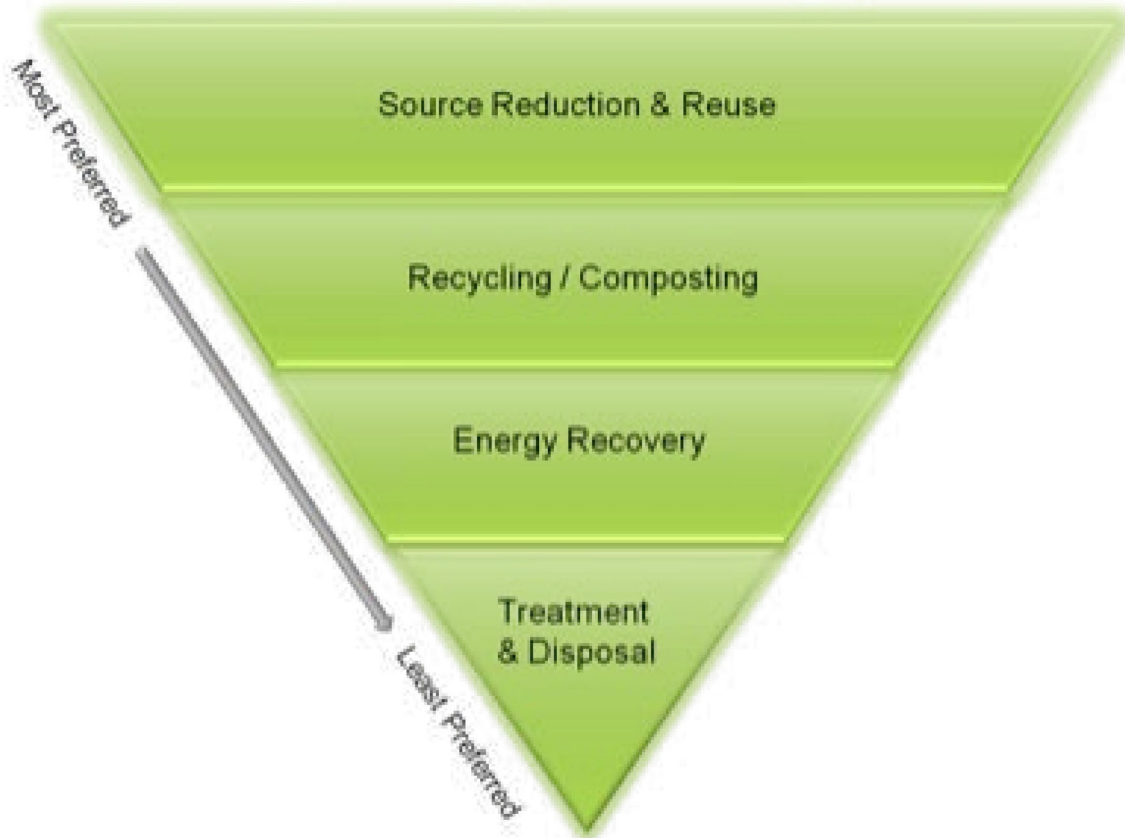
COUNTY WASTE TOTALS 2020 - 2021



*Municipal Solid Waste

Data Source:

WASTE MANAGEMENT HIERARCHY



Four tiered waste management hierarchy developed by the Environmental Protection Agency

HEY, BELTRAMI COUNTY!
DO YOU KNOW WHAT TO THROW?

When in doubt throw it out!
Help keep recycling clean!

For recycling to thrive, we need to recycle the **YES** things and keep the **NO** things out.

YES! Always recycle

- BOTTLES & CANS**
Empty, caps on
Type 1&2 Plastics only
- BOXES & PAPER**
Flatten, dry
- GLASS**
Empty, caps on

NO! LEAVE OUT

- NO BAGS**
RETURN TO RETAIL
- NO BATTERIES OR ELECTRONICS**
HAZARDOUS WASTE DROP-OFF
- NO CORDS, HOSES OR CHAINS**
DONATE OR TRASH

Excerpt from Beltrami County Solid Waste Services marketing material

MUNICIPAL SOLID WASTE

Everyday items consumed and disposed of by members throughout the Bemidji community are considered municipal solid waste (MSW). As described above, MSW collected throughout Beltrami County is transported to Polk County and is either incinerated or buried in a solid waste landfill. As shown in the bar graph, Beltrami County sent 9,519 tons to the incinerator in 2021, an increase from 8,306 tons sent in 2020. The County sent 7,833 tons of MSW to landfill in 2021, down from 8,228 tons in 2020. It is difficult to conceptualize volumes of this magnitude. For reference, the curb weight of a typical half-ton pickup truck (Ford F-150, Chevrolet Silverado, Dodge Ram 1500, Toyota Tundra, etc.) is approximately 4,000-6,000 pounds, depending on engine size and features. Using an average weight of 5,000 pounds, Beltrami County sent the equivalent of approximately 3,133 half-ton pickup trucks to landfill and incinerated approximately 3,800 pickup trucks in 2021.

RECYCLING

Recycling is often touted as one of the best solutions to the challenges posed by waste production. The reality of recycling and its ability to help us manage waste management is much more nuanced. Following expansion of the MRF in 2018, the six-county management program transitioned to single-stream recycling. This change means all recyclable content may be mixed prior to collection and eventual sorting. The list of recyclable content did not change through this transition, though, meaning residents and business are instructed to recycle only a subset of materials. As shown in the graphic widely distributed by Beltrami County Solid Waste Services (SWS), acceptable materials include glass (typically beverage bottles), aluminum and steel cans (typically food containers), cardboard and paper (corrugated boxes, office paper, newspaper, magazines, and paperboard), and plastics. The last category is typically the most confusing, as the MRF has traditionally accepted only plastic types #1 (PET, or polyethylene terephthalate) and #2 (HDPE, or high-density polyethylene). Yet, plastics are made of seven different resin types. When fully staffed, the MRF has the capacity to sort #5 (PP, or polypropylene, ie. yogurt containers, disposable plates/cups/cutlery) plastics but staffing challenges in 2021 and 2022 have prevented their consistent recycling. Thus, plastic types #3, #4, #6, and #7 are not recycled regionally.

Common consumer products packaged in plastics not recycled through the MRF include clear shower curtains or some cooking oil bottles (#3 - PVC, polyvinyl chloride), shopping bags and bread wrappers (#4 - LDPE, low density polyethylene), Styrofoam drinking cups and to-go food containers (#6 - PS, polystyrene), and baby bottles (#7 - PC, polycarbonate; items composed of multiple types of plastics). Due to strict recycling market standards, consumer outreach distributed by Beltrami County SWS emphasizes "When in doubt, throw it out! Help keep recycling clean!" Successfully and effectively reducing the waste stream

through recycling requires balance between two typical outcomes. Some consumers become exasperated by the confusing procedures associated with recycling efforts, especially if they experience the patchwork reality of waste management regimes in other regions and states. Such exasperation can lead said individuals to fully disengage from recycling efforts, opting instead to dispose of all their waste in the MSW stream. Other consumers believe the misconception of recycling programs as a perfect solution without fault. Full trust can lead said individuals to place non-recyclable content into the recycling stream because they believe those items will be recycled. A term to explain this behavior is "wishcycling," or recycling an item with the belief or hope it will be recycled. Unfortunately, improper disposal of non-recyclable content in the recycling stream reduces efficiency of the MRF and adds to the cost of solid waste management services. Wishcycling can also lead consumers to feel OK with their purchasing habits and resulting volume of waste they produce. Feeling even partially exonerated from guilt can perpetuate their consumer habits, which exacerbates the challenges associated with managing waste

Increasing county-wide participation in recycling efforts and increasing the accuracy with which we recycle waste products are both desirable outcomes. Yet, they should not be ultimate goals. Instead, we should strive to reduce the volume of waste we produce, regardless of whether it is recyclable or not. Reducing waste at its sources, by consuming fewer products with single-use or disposable aspects and reusing those products we must consume will ultimately lead to reductions in both raw material consumption and waste production. Indeed, source reduction and reuse are the Environmental Protection Agency's (EPA) most highly preferred strategies under its Waste Management Hierarchy, depicted by the inverted pyramid. Recycling should be a secondary strategy exercised after all efforts have been made to reduce and reuse.



Graphic distributed by Beltrami County Solid Waste Services depicting guidelines for single sort recycling

Organics

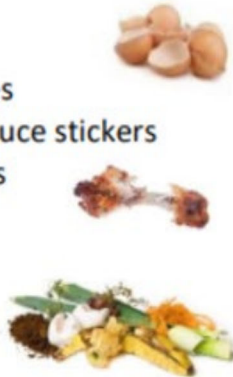
Composting Guide



Beltrami County
Solid Waste
218-333-8278

All Food

- Fruits + Vegetables
✓ Remove produce stickers
- Meat, fish + bones
- Dairy products
- Eggs + egg shells
- Bread + cereal
- Nuts + shells



Food Soiled Paper

- Pizza Boxes
✓ No wax
- Napkins + paper towel
- Paper egg cartons



Certified Compostable products

- Compostable paper, compostable plastic cups, plates, bowls, utensils + containers



Look for
"Compostable",
BPI logo or Cedar Grove on
certified products

Other compostable Items

- Coffee grounds and filters
- Hair and nail clippings
- Houseplants and flowers
- Chopsticks, Popsicle sticks, toothpicks
- Facial tissues
- Paper towel and toilet paper rolls



www.co.beltrami.mn.us
click on Solid Waste tab

Not Accepted: **products labeled "biodegradable"**, shop rags, paint, yard waste, diapers, animal and pet waste, litter or bedding, cleaning or baby wipes, grease or oil, Styrofoam™, dryer lint and dryer sheets, recyclable items; cartons, glass, metal, paper, plastic; frozen food boxes, microwave popcorn bags, gum, fast food wrappers, products containing Polyfluoralkyl substances (PFAS), textiles, butcher paper, paper with foil

ORGANICS RECYCLING/ COMPOST

According to estimates of Beltrami County's SWS, about one-third of residential trash is organic material. When sent to a landfill, organic material releases methane as it breaks down in anaerobic (lacking oxygen) conditions. Methane is an especially potent greenhouse gas that contributes to global warming. Though it is less abundant than carbon dioxide (CO₂), its ability to trap heat in the atmosphere is approximately 25 times greater than CO₂. Thankfully, the natural process of recycling organic matter, also known as composting, transforms the same organic material into a nutrient-rich soil amendment without creating methane as a byproduct.

Beltrami County SWS debuted a recycling program for organic materials, available to residents and commercial entities, in 2018. As shown in the poster, all foods plus a wide variety of items derived from organic matter can be composted. As with recycling, however, the act of composting is considered an effective strategy to be employed only after source reductions and options for reuse have been exhausted. Food products embody the resource expenditures necessary for production, harvest, transportation, processing, cold storage, retailing, and preparation. To allow consumable food to go to waste is synonymous with wasting all the embedded energy, labor, and money spent to prepare that food for consumption. Thus, increasing the efficiency with which we use food should be our priority, resorting to composting only when necessary.



SUSTAINABILITY
Ganawendakamigaawigamig

FREE STORE

A Place to Donate and Find

OPEN FOR STUDENTS
MONDAY-FRIDAY
10am-3pm

When the lights are on,
come on in!

**Non-Perishable Food
Kitchen Items**

**Office Supplies
Clothes**

**School Supplies
Shoes**



CAMPUS WASTE CONDITIONS

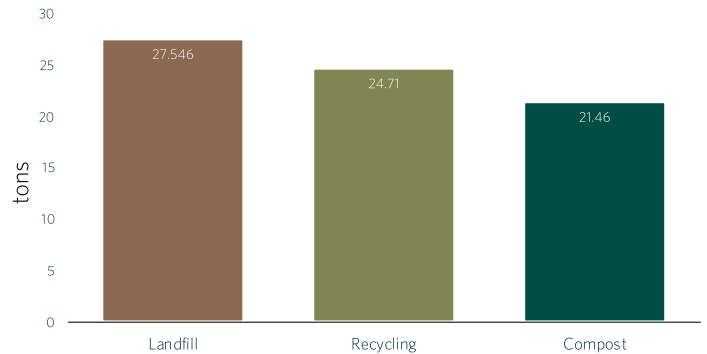
Per Minnesota State board policy 5.17 Commitment to Environmental Sustainability, Bemidji State University is to achieve a 75% solid waste diversion rate through recycling and composting of solid waste by 2030. In fiscal year 2021 Bemidji State University sent over 223 tons of waste to landfill, almost 25 tons of material for single-stream recycling, and 6.75 tons of organic waste for composting. Participating in regional recycling and composting efforts enabled the University to achieve a waste diversion rate of 12.4% (31.46 tons of 254.5 tons). Further reducing the mass and volume of waste sent to landfill through diversion into recycling programs will require changes to both systems and behaviors. However, reducing overall waste production should supersede the goal of diverting waste, particularly considering the imperfect nature of recycling systems. Reducing the production of waste at its source will limit the need for recycling and landfilling.

SOLID WASTE REDUCTION

Bemidji State University, as a member of the Minnesota State Colleges and Universities system, adheres to state law and system wide guidelines when managing state-owned property. Surplus assets and equipment remain the property of Minnesota State. Redistributing surplus property no longer desired by a particular office by making it available to other departments across campus reduces unnecessary waste. The University should make similar efforts whenever campus renovations render products unusable, as leveraging special disposition opportunities to sell or donate property may enable reuse of products by non-university personnel.

University operations, particularly on-campus student residency, also create a large volume of consumer

LANDFILL, RECYCLING, AND COMPOST FISCAL YEAR 2021



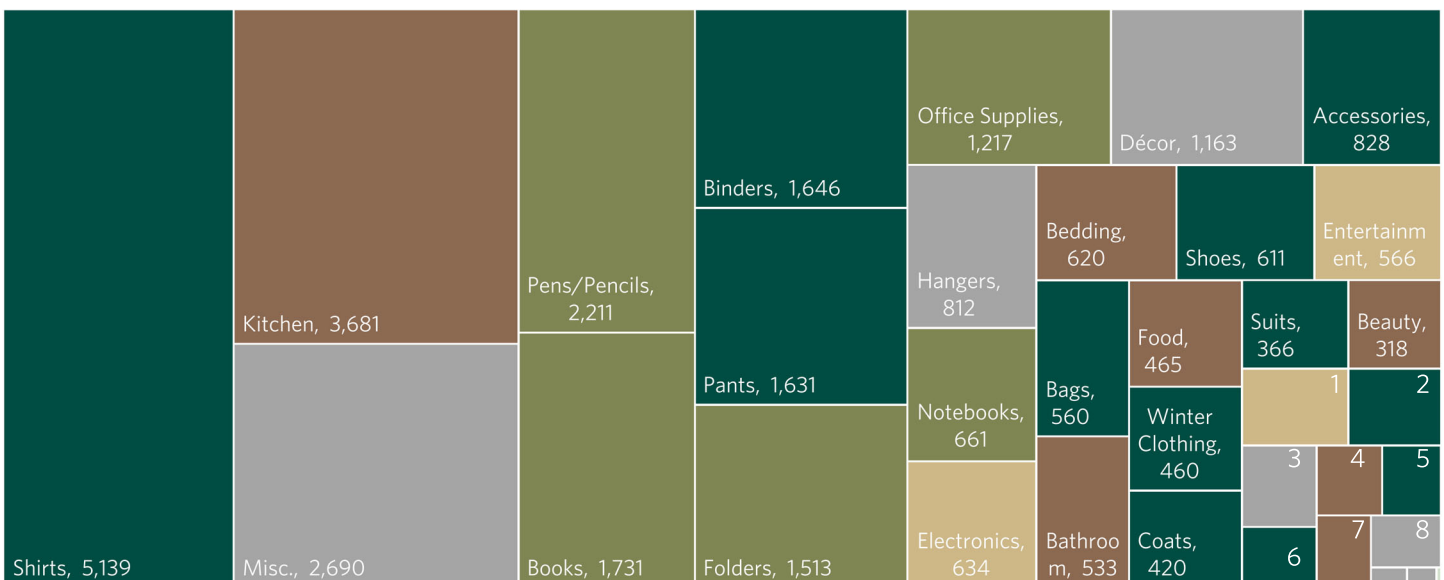
Data Source: Bemidji State University Master Database & Compost Diversion records. January 14, 2020 to Present

The cost of municipal solid waste (MSW) sent to landfill is \$154.36 per ton. Thus, diverting 24.71 tons of recyclable material and 21.46 tons of compostable material from our MSW stream saved the university \$7,126.81 through fiscal year 2021.



1. Children/Toys, 317
2. Dresses/Skirts, 273
3. Craft Supplies, 238
4. Furniture, 180
5. Shorts, 158
6. Athletics, 180
7. Small Appliances, 151
8. Water Bottles, 140

REUSE PROGRAM - FREE STORE TRACKING



Data Source: Bemidji State University, Office of Sustainability



products not owned by the state. It should be a goal to divert these items from landfill through reuse programs, particularly at the end of each academic semester when students may otherwise dispose of items while moving out of their residences. Online resale platforms provide one avenue for students to enable the reuse of items. Informing the student body of non-profits donation centers and consignment shops is another means for reducing landfill contributions. A pair of on-campus programs, the FreeStore and Donate Don't Dumpster campaign, strive to reduce campus contribution to landfill while promoting a culture of reuse.

The FreeStore, housed within Bemidji State University's Sustainability Office, is a place curated by students for students. As its name suggests, all items may be taken free of charge by currently enrolled students. The FreeStore operates in parallel with the Donate Don't Dumpster campaign, which encourages students to donate clean, usable items they no longer need or want to the FreeStore. The FreeStore also accepts donations from staff, faculty, and community members. A section of the FreeStore, known as the Suit Yourself Program, provides business attire to students preparing for a job interview or formal event.

In operation since 2010, the FreeStore has helped divert thousands of items from landfill while simultaneously benefitting students. Though it remains impossible to accurately quantify the financial savings accrued by students through their use of the FreeStore, the positive impacts are undeniable. In addition to diverting material from landfill and preventing costs associated with the purchase of items that can instead be found for free, the FreeStore and Donate Don't Dumpster campaign support a culture of reuse. Shifting public perception surrounding the value and reusability of products, be it among the student body or broader community, has the potential to yield even greater outcomes associated with waste reduction. Supporting similar reuse programs and local secondhand or consignment businesses will support the transition from a linear consumer economy to one in which reusing products and recycling waste outputs close circular loops.

ORGANIC WASTE REDUCTION

Food waste is a problem with substantial environmental impacts in the United States and around the world. The Minnesota Pollution Control Agency and federal Environmental Protection Agency agree on this fact. Efforts necessary to grow, raise, process, and transport foods require substantial resource inputs, from carbon-intensive fuels to freshwater to human time and effort. Beyond resource consumption, food production, distribution, and service emit greenhouse gas emissions and contribute to global warming. Failing to consume the products of these systems equates to a waste of all prior inputs. If our consumption failure results in wasted food ending up in landfill, the problem is further exacerbated

as the organic matter takes up finite space and releases additional greenhouse gases (ie. methane). Reducing food waste at its many sources in on-campus food services should be top priority, followed by composting all remaining organic waste.

Bemidji State University contracts food services to a third-party vendor, currently Aramark Corporation, whose existing contract extends through June 2026. Aramark staff collaborate to reduce food waste in on-campus dining facilities. A long-standing effort is the diversion of fryer oil waste for recycling. More recently, in January 2020, Aramark began diverting all pre- and post-consumer food waste from Walnut Hall to the Beltrami County composting program. The nature of maintaining a single collection point in this buffet-style dining hall enables capture of nearly all food waste produced in the facility. The drawback of funneling all waste through a dish room is the lack of awareness on the part of the consumer. Students do not see the collection of plate waste, which takes place behind a dish return window. Increasing consumer awareness and participation in behaviors to reduce plate waste should be a focus moving forward.

Capturing pre- and post-consumer waste in the a la carte food court on campus has proven more difficult. As of spring semester 2022, the numerous trash and recycling stations throughout the Lakeside Food Court enable disposal of organic waste in the municipal solid waste stream as opposed to the single organic waste collection bin, located in a dish return area. Increasing awareness of and participation in food waste diversion efforts in this setting is critical for decreasing the volume of organic material the university sends to landfill. Yet, composting should be emphasized as a lesser option to reducing food waste at its sources. Educating around effective portion control, food safe methods for storing leftover food, and other strategies to ensure more of the food we produce is actually consumed should be the primary strategy.

MOVING FORWARD

We recommend tracking municipal solid waste production, diversion rates through single-stream and organics recycling, degree of contamination in either MSW or recycling streams, and landfill capacity for both community and campus. Tracking these key metrics will enable understanding of and communication about existing challenges to the cleanliness of our communities, natural spaces, and waterways. Engaging in regional dialogue around strategies for converting linear take-make-waste systems into circular, regenerative systems will be critical to mitigating waste at its many sources.