

Show-Me RECYCLING



Expanding Our Economy,
Strengthening Our Communities,
Protecting our Environment

MISSOURI'S STORY

"Strong recycling programs at the state, regional and local levels are critical to Missouri's recycling industry."



Acknowledgements

Show-Me Recycling is published by the Missouri Recycling Association (MORA), a not-for-profit recycling organization that supports waste reduction and recycling efforts in Missouri by providing information, educational opportunities, and technical support in partnership with state, national and regional organizations.

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The Missouri Recycling Association, in partnership with Solid Waste Management Districts, the Department of Natural Resources Solid Waste Program, cities, towns and private businesses are proud to present the information included in this book. The Show-Me Recycling project is intended to increase awareness, support and participation in recycling programs across the state.

The Show-Me Recycling project highlights some of the recycling efforts already underway in Missouri. Please take time to review these case studies that demonstrate the benefits of recycling and the value that is placed on the programs by citizens throughout the state. You will see how recycling expands Missouri's economy, protects our environment and strengthens our communities.

This industry has evolved because of the hard work and cooperation of dedicated and committed citizens, businesses, organizations and governments across Missouri. MORA urges your continued support for strong state-wide, city, county and solid waste district programs. They are the essential base for an industry that is important to the Missouri economy and critical to the global environment.

Donna Utter, Board President
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Leadership

Thanks to effective leadership, public investment in recycling is paying off!

- Recycling is a way of life; 75 percent of Missourians report they recycle.
- Over the past 15 years, \$70 million has been invested in Missouri's recycling infrastructure. (\$1/person/year)
- Waste disposal fees have provided more than \$50 million in grants and loans for over 1,000 projects.
- The Solid Waste Management Districts continue to work with cities and towns to provide further support each year to expand the infrastructure.
- The recycling industry expands Missouri's economy more than \$10 billion per year.



Expanding Missouri's Economy - Job Opportunities

Over 28,000 people are employed by Missouri recycling businesses with an annual payroll of more than \$700 million. These jobs impact Missouri's economy by more than \$10 billion a year.



Environmental Preservation

Recycling is Preserving Our Environment for the Future

Recycling conserves energy and natural resources by decreasing the need to extract and process virgin materials from the earth. Recycling can also eliminate the pollution associated with the first two stages of a product's development: material extraction and processing. Recycling reduces, and in many cases eliminates, these pollutants.

We invite you to find your community's story in this report and share the pride from an effort to reduce climate change effects, educate your citizens about recycling benefits and strengthen Missouri's economy.



The Recycling Industry

Greatly Impacts the Missouri Economy

	Sales (\$1,000)	Payroll (\$1,000)	Employees
Recycling Collection	40,777	27,813	1,188
Recycling Processing	4,503,707	461,059	17,215
Recycling Manufacturing	4,072,534	1,201,991	54,738
Reuse & Remanufacturing	226,242	68,474	6,878
Total	8,843,260	1,759,337	80,019
Missouri Recycling Economic Information Study Prepared for: Environmental Improvement and Energy Resources Authority (EIERA)			

Recycling Opportunities: 45 percent (1.9 million tons/yr) of municipal waste deposited in Missouri's landfills is recyclable.

Waste Reduction and Recycling Grants

Legislation creating solid waste management grants (Senate Bill 530) was passed in 1990. The bill set a goal of 40 percent diversion of solid waste going into Missouri Landfills by 1998. These grants provided financial assistance to grow and strengthen Missouri's recycling infrastructure and helped us reach the diversion goal established in SB530.

Financial assistance has been provided through state solid waste management district grants for 15 years. The first grant call began in Fiscal Year 1993 with the selection of 40 projects. To date, these programs have provided more than \$50 million in grants and loans for over 1,000 projects, many of which are featured in this report.

State project grants along with the district grants and recycling market development assistance through the EIERA were instrumental in achieving the State's waste diversion goal. In fact, by fiscal year 2004, the diversion rate reached 47 percent.

Strengthening Our Communities

"The Economic and Environmental Benefits of Recycling Have Positive Societal Impacts Both Today and in the Future." U.S. EPA

"Job creation, pollution reduction, and energy conservation all serve to improve the quality of life in our communities. If we do not recycle, the repercussions will fall on future generations. Our children and grandchildren will inherit the legacy of virgin production and throwaway consumption. Instead of leaving future generations a depleted natural resource base and more waste in landfills—landfills that incur ongoing costs for monitoring and maintenance—we can leave a stronger economy, greater biodiversity, and less global warming by recognizing the value of recycling and passing this knowledge on to our children."

U.S. Environmental Protection Agency, *Puzzled About Recycling's Value? Look Beyond the Bin*, EPA530-K-97-



Environmental Benefits

Recycling Reduces Greenhouse Gas Emissions

In 2003, recycling in the St. Louis-Jefferson Solid Waste District reduced greenhouse gas emissions by over 536,000 metric tons of carbon equivalent, which is comparable to the carbon emissions from 405,000 cars. By reducing air and water pollution and saving energy, recycling offers an additional environmental benefit: it reduces heat trapping greenhouse gases that contribute to global climate change.



Recycling and composting reduce greenhouse gas emissions by:

- Decreasing the energy needed to make products from raw material.
- Reducing emissions from incinerators and landfills, which are major sources of methane gas emissions
- Slowing the harvest of trees, thereby maintaining the carbon dioxide storage benefit provided by forests.

Other Recycling Facts:

- Recycling aluminum saves 95 percent of the energy used to manufacture virgin aluminum.
- Recycling 1 ton of newspaper saves enough energy to heat a home for 6 weeks.
- Recycling 1 ton of plastics saves the equivalent of 3.85 barrels of oil.
- Recycling 1 glass bottle can save enough energy to light a 100-watt bulb for 4 hours.



A Call to Action

In natural systems, nothing is wasted and everything is recycled. Unfortunately, this has not always been the case in human societies. Archeologists have long studied the trash of past civilizations to learn how people lived in those times. Even recently, “garbologists” have excavated landfills to examine contents. Twenty-year old newspapers were still perfectly readable. It shows that there really is no “away” any more.

Historically, human communities were much more frugal and conservation-oriented as a predominantly agrarian economy was more self-sufficient and self-reliant. This period of our history probably peaked during the great depression, and lasted through the shortages of everything that was the norm during the second world war. Missourians learned to use it up, make it do, or do without.

Tremendous changes occurred after World War II. The baby boom swept in an era of unimagined growth and change. Rapid population growth, creation of the suburbs, our love affair with the automobile, rapid increases in consumption and consumer goods, the rise of the middle class, and a new culture of growth and consumerism pushed the tough times of the previous decades from our collective consciousness. It seemed as if the party would never end.

These changes, however, did come at a significant cost which finally began to catch up with the country. The environmental problems of growth and industrialization, increased use of toxic chemicals, air and water pollution, urban sprawl and other impacts of growth began to be felt on a widespread basis. Recycling as well as many other conservation issues had been left far behind during the boom times.

The pendulum began to swing back in the 1960's. Books like "Silent Spring" had a major impact. Many still remember rivers catching on fire, and the anti-littering commercial featuring the American Indian with a tear in his eye. It was a reawakening of our conservation roots, and it seemed a milestone breakthrough occurred with the first Earth Day in 1970.

The coming years saw passage of many of our major environmental laws, such as the Clean Air Act and Clean Water Act, as well as the National Environmental Policy Act and the Endangered Species Act. Much hard work went into developing the framework of environmental laws that led to the major improvements in environmental quality that we enjoy today. Most of this work dealt with large pollution problems, known as point-source pollution. The non-point source issues and solutions, including recycling, were still waiting for their day in the sun.

As progress continued on addressing environmental problems, recycling was occurring, but on a very small scale. It took until the late 1980's for the recycling issue to finally reach a critical mass. The evolution of NIMBYism (Not In My Back Yard) resulted in increasing opposition to new waste disposal facilities. Also, many will recall the seemingly endless journey of the Mobro, a New York City garbage barge that circled the earth looking for a place to dump its load. This was the tipping point that ultimately gave birth to the recycling industry that has grown here in Missouri.

Missouri Responds

As happened in many other states, Missourians demanded action to address our growing solid waste management issues, and the state legislature responded. After lengthy deliberations, the Missouri state legislature passed Senate Bill 530 in 1990, and Missouri had the tools to develop a comprehensive recycling industry. This bi-partisan bill had a number of key provisions that worked together to jump start the rapid growth of Missouri's recycling industry, with a goal of diverting 40 percent of all waste generated.

Senate Bill 530, among other things, contained three important components. The first was a landfill ban for certain materials. These included yard waste, white goods, waste oil, and whole tires. This had the dual purpose of conserving landfill space, while also stimulating the development of alternative means of managing these materials.

The second provision was the creation of regional solid waste management districts. Districts are independent political corporations established to expand waste reduction and recycling at the local level. These local units of government allow for regional cooperation that can tailor local program efforts to fit local recycling needs. This has been important because recycling program needs are vastly different in different areas of the state. The legislature deliberately chose a decentralized grass-roots approach to implement recycling on a statewide basis. There are twenty districts in Missouri, and no two are quite the same.

The other major provision in Senate Bill 530 was the creation of a solid waste management fund to finance the growth of waste reduction and recycling programs. The funds are generated by a tipping fee surcharge on every ton of waste disposed of in a landfill. This fee of slightly over \$2 per ton currently

Over the past 15 years, approximately \$70 million dollars has been invested to create a recycling infrastructure in Missouri. As stated earlier, this total equates to approximately \$1 per person per year across the state. However, this modest outlay has generated a tremendous return on investment for Missouri. Missouri's recycling industry has expanded our economy, protected our environment, and strengthened our communities.

generates approximately \$6 million dollars per year. While this seems like a lot, it works out to about \$1 per person in the state per year. These funds are in high demand, and get spread pretty thin very quickly for the wide variety of programs found across the state.

Districts have provided grants for a host of waste reduction and recycling projects throughout Missouri, many of which are featured in this report. Grants are provided for a wide variety of projects. These run the gamut from waste reduction projects that eliminate waste, recycling programs, composting projects, household hazardous waste management programs, education efforts in schools and communities, waste tire collections, and market development projects that help close the loop for recovered materials. The variety of recycling programs operating across the state is quite impressive.

Grants have also been provided by the Missouri Department of Natural Resources and recycling market development assistance has been provided through the Missouri Environmental Improvement and Energy Resources Authority (EIERA), both funded through the tipping fee. The complementary efforts among districts and the state agencies have been a major driver in the growth of Missouri's recycling industry. The growth of the industry has also come about due to unprecedented cooperation among the public, private and not-for-profit communities to create and deliver the high-quality programs found across Missouri. The phrase "public-private partnership" is tossed around frequently, but recycling is one instance where it has really worked well, and includes significant regional cooperation among local governments as well.

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A 2007 EPA study indicates the recycling industry employs 1.1 million people in the U.S.

The Benefits Grow

When the effort to expand recycling began back in 1990, Missouri's waste diversion rate was probably less than five percent. Very little recycling was occurring, and the state of the industry was primitive by today's standards. By 2007, the Missouri Department of Natural Resources estimated 44 percent of all waste generated was being diverted from disposal. A recent state-wide survey by the Missouri Department of Natural Resource also revealed that 74 percent of all Missourians participate in recycling programs. This is a tremendous increase in a short period of time, and an accomplishment Missouri can take great pride in achieving.

Diverting waste from landfills has many benefits. While most people are aware of the environmental benefits of recycling, people are often surprised by some of the other benefits. Recycling also expands our economy, protects our environment, and strengthens our communities.

Recycling has become an important component of the state's economy. By diverting materials from disposal, what was once waste becomes resources for making new products. This creates jobs and revenues for Missouri. A 2005 Truman School study estimated that Missouri's recycling industry employs over 28,000 workers, produces sales of over \$5 billion dollars, and produces a payroll of over \$700 million. A University of Missouri-St. Louis analysis of recycling also projected state and local tax revenues of over \$80 million. By keeping these resources in circulation, there are additional multiplier effects that make the economic benefits far greater over time.

The environmental benefits from recycling are also important to Missouri. A study by the East-West Gateway Coordinating Council found recycling saves energy, enough to power over 125,000 homes per year. Thousand of tons of air and water pollution are reduced annually by recycling. Hundreds of thousands of tons of natural resources, from trees to oil to minerals, are also conserved due to the use of recycled materials as feedstock. Recycling also reduces greenhouse gas emissions. Recycling reduces these emissions by over 500,000 tons of carbon, which is comparable to taking over 400,000 cars off the road annually. As climate change looms over all of us with potentially catastrophic results, recycling is one of the easiest ways for each of us to reduce our environmental footprint. Everyone's participation in recycling is important!

The 2006-07 Missouri Municipal Solid Waste Composition Study found nearly 45% of the municipal solid waste deposited in landfills could be recycled, including metals, paper, plastics and glass

The study estimated more than 1.9 million tons of recyclable materials are disposed of in Missouri landfills annually.

If recycled, the potential economic value of the materials as commodities would have been approx. \$208 million dollars.

The study may be viewed at the Missouri Department of Natural Resources Web site at: www.dnr.mo.gov/env/swmp/pubs-reports.

Finally, recycling has a positive impact on the quality of life in communities large and small. Sheltered workshops that recycle provide employment opportunities for their clientele, education programs in schools help integrate recycling into the community fabric, waste tire collections help eliminate public nuisances and disease, household hazardous waste collections keep toxic materials out of streams and sewers, citizen groups organize to improve their communities, and the list goes on.

Recycling is often a catalyst for community betterment, and greatly increases the quality of life for Missouri citizens and the generations to come.

Looking Ahead

This book celebrates the success of recycling programs throughout the state of Missouri. Recycling has come a long way in a short time, and it can be tempting to rest on our accomplishments. However, much work remains to ensure that Missouri's recycling industry will continue to grow and be in position to meet challenges in the coming years.

Maintaining the progress that has occurred up to this point will be an ongoing challenge. Equipment ages and becomes obsolete, processing technologies evolve, education must be ongoing, and so forth. It will take dedicated work to keep Missouri at the diversion levels that have been achieved so far. Increasing diversion above current levels will get even harder and take more commitment and resources.

The State Solid Waste Management Fund that has supported recycling and the development of the recycling infrastructure, has shrunk significantly in the past few years, and have been capped until October 1, 2014.

This means that there are less resources available to grow programs and implement new programs. Preserving available funds, and securing additional resources will be important to maintain and expand waste diversion beyond present levels.

There is still work to be done to insure recycling opportunities are available in all corners of the state for all of our citizens, business, and institutions. Education, outreach and marketing efforts are important to make sure everyone knows what recycling opportunities are available, and how they can participate. Increasing participation is one of the most effective ways to further increase diversion with minimal additional investment.

Opportunities will emerge to divert additional materials in the coming years. A prime example is the recent emergence of electronic recycling in the state. Obsolete and unwanted electronics are a fast growing component of the waste stream that can have serious environmental impacts if not handled properly. Also, the 2009 changeover from analog to digital television is going to cause a huge amount of obsolete televisions to enter the waste stream over the next several years. Missouri is taking steps to meet that challenge. This is just one example of how the recycling industry must continue to grow to handle the changing needs of our modern society.

Capturing the full economic development potential of the recycling industry will also provide an important challenge and opportunity. As additional materials are collected and participation climbs, there is a strong potential to attract manufacturers and others who can utilize these resources to create value-added products. This can increase jobs, payrolls, tax revenues, and support other parts of our economy as the multiplier effects of the recycling industry help support and expand other sectors of Missouri's economy.

A Closing Word

Please explore this book to enjoy a snapshot of some of the many and varied programs that are part of Missouri's current recycling industry. This industry has evolved because of the hard work and cooperation of dedicated and committed citizens, businesses, organizations, and governments across the state. MORA would like to thank and congratulate Missourians for their tireless efforts up to this point, and encourage everyone to continue to work together to further expand recycling in Missouri. Our efforts will benefit not only our own lives, but future generations of citizens. Missouri's recycling industry is expanding our economy, protecting our environment, and strengthening our communities. Let's keep up the good work!

Missouri Success Stories - Table of Contents

These stories illustrate the important role recycling plays in Missouri. They are only a snapshot of the many successes that can be found all across the state. With the leadership of these and other businesses and programs, our state can continue to improve and expand its recycling efforts, saving valuable commodities from the landfill and creating jobs in the process.

Many of the successful projects featured in this report received funding, full or in part, by the state solid waste funds through grants from the solid waste districts, DNR Solid Waste Program, or EIERA. Funding has been identified in each story and a complete index can be found on pages 110-111 of this report.

Disclaimer: Stories submitted were not verified for accuracy by MORA or any of the grantors mentioned above. If you have questions or would like additional information, please contact the appropriate point of contact directly.

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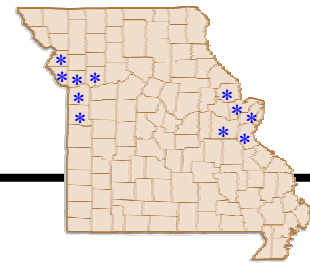
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RESOURCES

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Abitibi Paper Retriever®: Paper Recycling

*Newspaper, magazines, mail, catalogs,
office and school paper*



Project Summary

Sixty-nine school districts in the Kansas City and St. Louis area, consisting of more than 450 public and private schools, are earning money from paper recycling while at the same time helping the environment. The Abitibi Paper Retriever® is a free community recycling program and fundraiser that began in Missouri in 1999. In 2006, it diverted more than **40,000** tons of paper from Missouri landfills and distributed over **half a million dollars** to schools, places of worship and other Missouri nonprofit organizations.

The majority of schools use the Abitibi Paper Retriever® as a means to engage students in a hands-on recycling program, along with educating them at an early age about the need to recycle and practice environmental stewardship.

Every month, each school receives an activity report detailing the pounds of paper collected and its corresponding environmental benefit, such as trees saved, landfill space saved, and water conserved.

As one school district official describes it, “The Abitibi Paper Retriever® provides an opportunity for students to actively participate and learn about environmental responsibility. The students help educate their parents and the community. Once everyone is involved, the money starts flowing. Abitibi tracks the pounds recycled each month and measures how many gallons of water are saved by a school per year. The Student Council receives the money earned benefiting all students.”

In addition to being a powerful teaching and recycling tool, the Abitibi Paper Retriever® has economic benefits to Missouri. As paper is diverted from the waste stream, it results in lower tipping fees paid by communities, and dollars saved in trash pick up costs.



Location: Cass, Clay, Jackson, Platte, Ray, Buchanan, St. Louis, St. Charles, Jefferson, Lincoln and Franklin Counties

Date Implemented: 1999 (program opened in Kansas City and St. Louis)

Staff Required at Collection Site: 1 Recycling Coordinator at each Location

Involved: Local Solid Waste Districts, County and City Recycling Coordinators, Various Nonprofit Organizations

Contact Info:

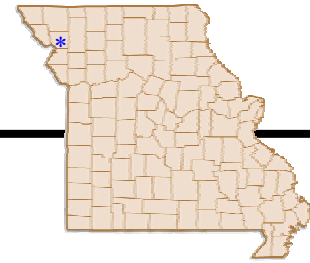
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Joining the program is free for any nonprofit organization and the implementation at the location is minimal.

Benefits

- free recycling program for community-minded organizations that want to raise funds to benefit local charities
- proven to increase recycling rates for all materials in communities where it is located, sometimes more than four percent
- encourages and raises awareness of recycling programs for all materials
- accepts newspapers, magazines, mail, catalogs, office and school papers

Andrew County: Drop-Off Programs



Multiple Commodities

Project Summary

Although budgets are strict and money is tight Andrew County continues to maintain two top-notch recycling programs. Andrew County provides a rotating community recycling trailer and a drop-off recycling center.

The trailer travels to eight rural communities per month providing the opportunity to recycle with ease. The recycling trailer travels to 4 locations the first Saturday of every month and 4 locations the second Saturday of every month. The trailer and friendly staff arrive at each location and set up service for one hour.

The drop-off center has evolved from portable recycling trailers located in a parking lot to the current clean, easily accessible drop-off center. The current drop-off center is located in the City of Savannah, inside a metal building. The materials are kept secure from the weather and can be unloaded easily. The walls are lined with bins to accept a variety of recyclables. Accepted materials include plastics, brown and clear glass, newspaper, cardboard and aluminum cans and are sent to Clinco Sheltered Workshop for processing. The floor, drive, and parking area are concrete, making a safe, neat, and reliable recycling area. The program has expanded to become one of the best in the area.



<i>Tonnage Figures</i>	
2004	90.6 tons
2005	104.62 tons
2006	126.32 tons

Location: The trailer travels to eight communities in Andrew County. The drop-off center is in the City of Savannah.

Date Implemented: Drop-off center in 1995. Trailer in 1996.

Time Required to Implement: 1 year

Start-Up Costs: \$24,110 for recycling trailers. \$1,680 for flatbed trailer purchased for rotating program.

Staff Required: 1 full time and 1 part time employee.

Involved: Andrew County Commission, Clinco Sheltered Workshop, Region D Recycling & Waste Management District (funding-\$25,790 for equipment)

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Andrew County also recycles all of their waste oil from county equipment. The waste oil is burned in their waste-oil furnace, providing heat for the county barn. Disposal costs for waste oil and energy are saved by this alternative.

The County's recycling programs are superb with over **126 tons** being recycled in 2006.

Benefits

- Over **126 tons** recycled and diverted from landfills in 2006
- Convenient recycling for Andrew County residents
- Waste oil is reused to provide heat for a county building

Anheuser-Busch Recycling Corp.

Comprehensive Recycling



Project Summary

In 1978, eight years after August Busch, Jr., signed “A Pledge and A Promise,” a commitment to environmental responsibility, Anheuser-Busch Recycling Corporation (A-BRC) was founded. Since then, Anheuser-Busch has become a leader in recycling and waste reduction.



Today, Anheuser-Busch facilities recycle more than **97%** of the waste they generate, which equates to more than **five billion pounds** of materials a year. As early as the late 1800s, Anheuser-Busch began recycling leftover grain from the brewing process, using it for cattle feed, a practice that continues today.

Anheuser-Busch Recycling Corporation is now one of the largest recyclers of aluminum beverage containers in the world. Annually, they recycle more than **27 billion cans**, more cans than their breweries package.

- A-BRC implements hundreds of recycling programs each year, ranging from the company’s Recycle Challenge school program to beverage container collection at large venues and events. Budweiser Green Teams staff some of the largest events in the U.S. to help prevent litter and increase recycling and recycling awareness.
- A-BRC supports a vast network of more than 700 suppliers by providing collection equipment and marketing tools.

Anheuser-Busch is a founding member of the Buy Recycled Business Alliance. In 2006, the company purchased more than **one billion pounds** of post-consumer content products with a value exceeding **two billion dollars**.

Anheuser-Busch employees are absolutely key to the company’s success because they understand how materials are used and the best way to conserve and reclaim them for other uses. They are aware of Anheuser-Busch’s rich history of environmental stewardship and how the efficient use of natural resources can lower the company’s environmental footprint and reduce operating costs.

Anheuser-Busch communicates the need for conservation and their new initiatives to employees through a variety of mechanisms including: newsletters, an Intranet system, and Green Week, which is Anheuser-Busch’s internal Earth Day celebration. There are energy, water, and waste reduction teams at all Anheuser-Busch facilities, as well as energy fairs, special events, and “Lunch and Learn” programs. There is also an employee suggestion program which includes awards and prizes for conservation-related suggestions.

Location: St. Louis, MO

Date Implemented:

Anheuser-Busch: 1852

Anheuser-Busch Recycling Corp.: 1978

Contact Info:

Tom Flood

Anheuser-Busch Recycling Corporation

3636 South Geyer Road

St. Louis, MO 63127

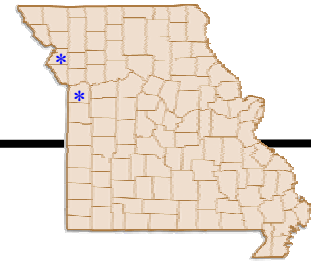
314 957-9389

Tom.Flood@anheuser-busch.com

Benefits

- Recycled **4.8 billion pounds** of materials in 2005
- Partners with wholesalers and suppliers to reduce packaging
- Purchases recycled material (**one billion lbs** in 2006)
- Uses 100% recyclable pallets

Aquila: Tire Derived Fuel (TDF) Project



Waste Tires


Project Summary

Since 1997, Aquila has burned more than **10 million tires** (over 208 million pounds) to generate electricity at the Sibley and Lake Road generating facilities. The tires burned have effectively replaced the equivalent of **170,275 tons** of coal that would have been used for power generation.

Aquila receives scrap tires that have been shredded by independent companies to be used as tire derived fuel (TDF). A passenger car tire has a heat value equivalent to approximately 20 to 25 pounds of coal making scrap tires a fuel alternative that conserves natural resources. The Aquila plants burn a maximum of 5 percent TDF as a supplement to coal used for the remaining 95 percent of power generation.

If stacked, these tires would reach a height of 1,153 miles or approximately three times higher than the Hubble Space Telescope, or extend end-to-end 3,953 miles – from Orlando, Florida to Anchorage, Alaska.

The Sibley plant, located on the Missouri River about 20 miles east of Kansas City, is Aquila's largest generating facility with a total potential capacity of 500 megawatts (one megawatt equals one million watts). The Lake Road generating facility, on the Missouri River in southwestern St. Joseph, has a total generating capacity of 254 megawatts of electricity.



Carbon Footprint - benefits of recycling 10 million tires
Climate benefit = 823 cars not driven for one year
Energy reduction benefit = 9,093 barrels of oil



TDF going to the boiler

Location: Jackson and Buchanan Counties. The Sibley facility is along the Missouri River in the town of Sibley about 20 miles east of Kansas City. The Lake Road facility is located in the southwestern part of the City of St. Joseph.

Date Implemented: 1997

Time Required to Implement: 6 months for approval and installation of new conveyor for loading TDF

Start-Up Costs: approximately \$50,000

Staff Required: Sibley facility: one employee, seven days/week for 6 to 8 hours/day. Lake Road facility: existing handlers, seven days/week for two hours/day.

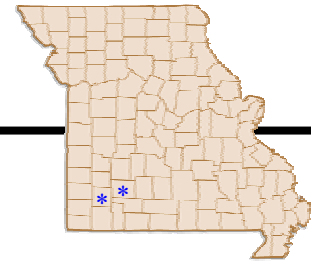
Involved: MoDNR

Contact Info: Steve Brooks, Environmental Manager
816 467-3321
steve.brooks@aquila.com

Benefits

- Reduced coal consumption by over **170,000 tons**
- Removed over **10 million** passenger tire equivalents from the environment and used them to make electricity
- Removed breeding grounds for up to **100 trillion** mosquitoes per breeding season (based on each tire being able to produce up to 1 million mosquitoes during a breeding season) and therefore reduced probability of West Nile virus

Black Oak Organics, LLC: Composting



Food waste

Project Summary

"You don't see many companies doing this," said Craig Post, president of Black Oak Organics, LLC, based in Verona. "We're one of the few companies in Missouri that composts food waste."

Depending on market demand, the company contracts with a hauling firm and collects food waste, commercial wood waste, yard waste and storm debris to process into a rich compost material. The food wastes and other raw materials are collected from restaurants, stores, tree-trimming companies, construction companies, and utilities in the Springfield area.

Black Oak, which has five employees, estimates that the company will divert **10,000 tons** of valuable raw materials annually from area landfills.

In 2005, Black Oak received assistance from the EIERA Missouri Market Development Program to purchase a compost windrow turner that grinds, chops and shapes windrows of compost that are 14 feet wide and about 8 feet tall.



From January '07 to July '07:
Diversion--
3,900 tons of wood waste
2,100 tons of food waste
600 tons of shingles
Sold--
900 yards of erosion control material
600 yards of compost
20,000 tons of shingles ground for asphalt

When the raw materials become compost, which is usually a 15 week cycle, the new product is packaged and ready for market. "We ship our compost to lawn and garden companies, nurseries, and construction companies throughout southwest Missouri," Post confirmed. Black Oak produces **18,000 cubic yards** of compost on an annual basis.

Black Oak is currently under submission to the State for approval to expand their facility from a two acre pad to a five acre pad; doubling processing capacity of C&D materials for LEED Green Building and composting of water and food waste from production and pre- and post-consumer generation.

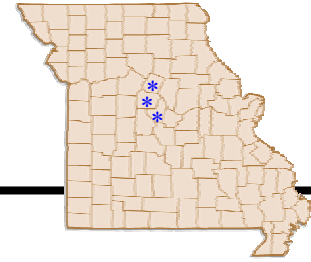
Location: Greene and Lawrence Counties
Date Implemented: 2005
Time Required to Implement: 2 years
Employees: 5
Involved: EIERA (funding-\$50,000) and Mo.DNR (funding-\$115,000)
Contact Info:
Craig Post
Black Oak Organics, LLC
1688 S. Farm Rd.
Springfield, MO 65802
417 207-0616
craig_post417@yahoo.com

Benefits

- Diverts a wide variety of organic materials from landfills
- Provides jobs
- Waste converted into a valuable, marketable product
- Composts food, wood, yard, and storm waste
- Diverts shingles for asphalt
- Processes C&D waste for LEED projects

Boonslick Industries, Inc.:

Sheltered Workshop Recycling



Cardboard, newsprint, books, paper, and textiles

Project Summary

Boonslick Industries, Inc. (BII), a sheltered workshop in central Missouri, did assembly work for over 10 years for Caterpillar HPR. In 2003, Caterpillar took all of the assembly work back into their company. This left 60 workers with disabilities, and their supervisors with no work.

After trying unsuccessfully for a year to find other assembly work, BII teamed up with Missouri Enterprises to survey area businesses and residents to determine what was needed in the area that people with disabilities could perform. The answer was recycling. BII submitted and received grants from the Missouri Department of Natural Resources and Mid Missouri Solid Waste Management District—Region H to purchase equipment to get the recycling program running.

In January of 2005, the recycling program began. In the first year of operation, the program diverted **86,284 pounds** of waste and employed 27 people with disabilities. The following year, the program diverted **1,003,187 pounds** of waste from employed 32 people with disabilities as well as 4 full time supervisors. In 2007, the recycling program expanded into surrounding towns in two counties and diversion increased to **1,250,000 pounds**. None of these businesses or towns had recycling prior to BII. With the addition of a horizontal baler, BII is now able to bale recycled newsprint and sell it to Huebert Fiberboard in Boonville, which increases revenue, and supplies another local business with feedstock. Currently BII recycles cardboard, newsprint, books, paper, and textiles. Aluminum may be collected in the future.



Workers sorting clothing at the Boonslick resale shop "Savvy Seconds"

Location: Cooper, Howard, and Moniteau Counties

Date Implemented: 2004-2005

Time Required to Implement: 6 Months

Start-Up Costs: \$9,000.00

Employees: 4 Full Time Employees and 32 Workers with Disabilities

Involved: EIERA (funding-\$4,500 for business review), Missouri Enterprise, Mo. DNR (funding), City of Boonville (funding), and Mid-MO SWMD-Region H (funding)

Contact Info:

Vicki McCarrell - Executive Director

vicki@uoi.org 660 882-5576, ext. 120

Dave Saunders - Recycling Coordinator

dave@uoi.org 660 882-5576, ext 134

C.J. Welch - Workshop Manager

cj@uoi.org 660 882-5576, ext 126

Donna Grove - Reusables Coordinator

donna@uoi.org 660 882-5576, ext 140

BII also opened a resale store, Savvy Seconds, which employs nine men and women with disabilities who sort clothing and other textile items for sale in the store. Items which are damaged or can't be sold are baled, sold to recycling companies, and diverted from landfills as well.

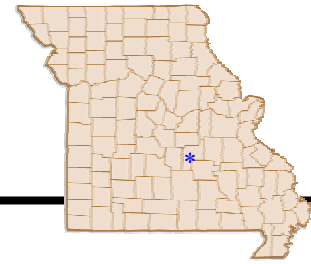
As a service to local teachers and day care providers, BII sets aside books and other school supplies and donates them to the Reusables program. Reusables distributes the items to educators and community organizations at no charge.

Benefits

- **One million tons** of waste diverted from landfill
- New jobs created
- Usable items donated to local teachers and day care providers

Brewer Science: Working Toward Sustainability

Multiple Commodities



Project Summary

Brewer Science is a major innovator of high-technology solutions for the semiconductor and microelectronics equipment and chemicals marketplace. The stringent requirements of these markets provide us with opportunities to harness the company's knowledge and creativity to provide innovative, advanced technologies. We are a socially responsible company that honors our commitment to be a company of the people, for the customer, and by the technology as we add unexpected value throughout the world. Our Health, Safety, Security and Environmental Management System provides evidence of this commitment. You will find Brewer Science leading the community and our industry by supporting many organizations with a focus on arts, education and the environment.



Recycling Totals:

2002 - 7 tons

2003 - 13 tons

2004 - 17 tons

2005 - 96 tons (added cardboard)

2006 - 86 tons

Materials include paper, plastic bags, shrink wrap, bottles, containers, aluminum cans, cell phones, inkjet cartridges, batteries, steel drums and metals.

In 2002 Brewer Science decided to significantly expand its recycling efforts. After a successful Mini-Bin pilot program implementation, desk-side recycling centers were introduced company-wide. To date, more than 290 tons have been diverted from landfills as a result of the company's efforts to recycle cardboard, plastic bags, shrink wrap, aluminum, plastic bottles, jugs, shredded paper, mixed paper, shipping and packaging materials, batteries, metal and ink cartridges.

Brewer Science has shared its recycling program with the local community by making presentations at the local Chamber of Commerce, hospital and schools. A strong alliance has also been forged with the University of Missouri-Rolla, with whom we partner to host annual Earth Day activities for the community with a focus on recycling. The company has even held a highly successful tire collection that kept 90 tons of waste tires out of landfills and the Phelps County, Missouri, landscape.

Brewer Science also participates in community recycling collections, which include the proper disposal of household hazardous waste, as well as electronic products. Employees also control litter in the surrounding industrial park as part of the company's street adoption program.

Location: Phelps County

Contact Info:

Sue Bruner, Environmental Support Specialist
Brewer Science, Inc.
2401 Brewer Drive
Rolla MO 65401
Sue.bruner@brewerscience.com
573 364-0300, ext. 1202

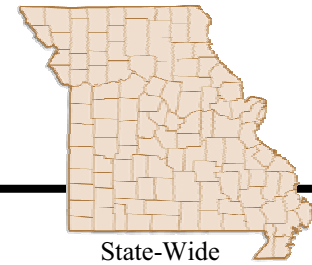
In addition, our business supports the use of recycled paper products by using paper with post-consumer recycled content. Brewer Science is committed to making a positive difference.

Benefits

- Community involvement
- **219** tons diverted from landfills over a 5 year period
- Company wide sustainability ethic

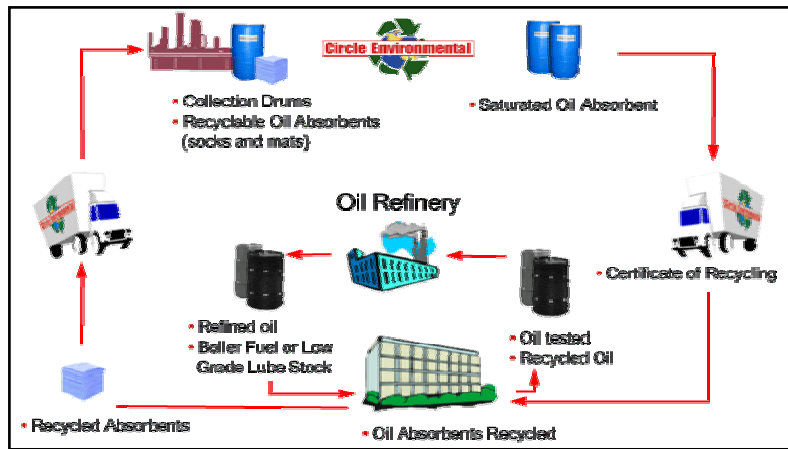
Circle Environmental: Recycling Oil Absorbents, Oil, & Drums

Waste oil



Project Summary

Circle Environmental has been an integral part of recycling oil absorbents in the state of Missouri, as well as eight other states for over 10 years. Circle Environmental provides a cost effective recycling opportunity for manufacturing facilities as well as municipalities. Circle Environmental is able to convert three waste streams into three reusable or recyclable products.



Circle Environmental provides oil absorbing mats consisting of various forms of Polypropylene along with 55 gallon poly drums to clients. Once the absorbing mats are saturated, the client places them in the drums. Full drums are collected by trained drivers and transported to the recycling facility located in Callaway County.



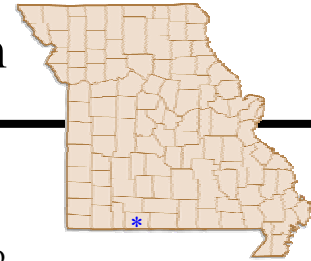
The oil is separated from the mats using centrifugal force. The oil is then recycled by one of Circle Environmental's partners. Usually it is processed into low grade lubricants or used as a fuel (energy) in the asphalt industry. Using a patented system, the mats are laundered. The process is very similar to what a shirt, pants, or blouse would go through at a dry cleaning establishment. There is NO WATER used in this process. The clean mats are repackaged and sent back out to clients and the drums are cleaned and reused.

Location: Callaway County
Date Implemented: 1996
Employees: 20
Contact Info:
 Jim FitzGerald
 P.O. Box 663
 St. Louis MO 63006
 888-USED-OIL
www.recyclemats.com
Jim@recyclemats.com

Benefits

- Has diverted **1.5 million pounds** of absorbents, drums, and oil from landfills.
- **22,000 gallons** of oil recycled/reused
- **141.3 tons** of waste from Missouri companies diverted and converted
- **3,960 gallons** of oil from Missouri companies recycled/reused
- **20 jobs** with an average salary of more than \$40,000 in 2006

City of Branson: Hazardous Waste Collection



Household Chemicals

Project Summary

In November, 2006 the citizens of Taney County gained a permanent facility to dispose of household chemical waste. The event was coordinated by the city of Branson and Taney County with costs shared by the two entities plus Forsyth, Hollister and the Taney County Emergency Planning Committee.

Through a grant from Solid Waste Management District N, a cargo container was purchased to serve as a satellite site allowing year-round collection of materials. Joplin is the only other city in Missouri with a similar satellite set-up. Kimberling City and Monett are expected to have facilities funded through the same grant.



“This is a prime example of how a group of people working together can combine efforts to make a good thing happen in the community,” said Debbie Redford, environmental specialist for the city of Branson. The City of Branson provided the materials needed to expand the recycling center area. Personnel from the Taney County Road and Bridge Department and the County concrete crew provided most of the labor. The cost of properly disposing of the chemicals will initially come from a grant and then will be borne by the county and municipalities.

The average homeowner has about 115 pounds of household chemicals at their residence. A sample list includes: cleaners, drain opener, disinfectant, floor wax, antifreeze, batteries, degreaser, kerosene, transmission fluid, pesticides, fertilizers paint, thinner and stripper, stain, varnish, wood preservative, photography and swimming pool chemicals, smoke detectors, thermometers, Ni-cad batteries, and boat and car batteries. This list is not inclusive of the items that can be found in and around the home that could be classified as household hazardous waste. Latex paint will not be accepted. There is no charge for this service but only residential material can be accepted.

Location: Taney County

Date Implemented: 2006

Time Required to Implement: Over a year

Start-Up Costs: \$7,000

Staff Required: 2 Employees (working part time with HHW)

Involved: SWMD-N (funding), SWMD-M, Taney County, City of Forsyth, City of Hollister, and the Taney County Emergency Planning Committee

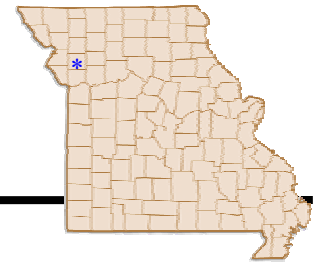
Contact Info: Debbie Redford, Branson
Environmental Specialist
417 337-8566
dredford@cityofbranson.org

Director of Public Works, Larry VanGilder, explained how the city and county have joined together to make the facility a reality. “In order to ensure that people do the right thing when it’s time to get rid of these chemicals, it’s important that we offer them a safe alternative. Proper disposal of household chemicals is a critical step in protecting the area’s water quality.”

Benefits

- Convenient, safe disposal of household hazardous waste for citizens of Branson and Taney County
- Helps deter improper dumping
- Diverts hazardous materials from the landfill

City of Cameron: Drop-Off and Curbside Recycling



Multiple Commodities

Project Summary

In 1993, Cameron City officials asked residents to support a recycling program. The residents stepped forward and voted to recycle. Each household pays \$1 per month to support the program. Clinco Sheltered Workshop, located in Cameron, processes the collected material. This partnership is mutually beneficial to the City of Cameron and Clinco. Clinco's clients are provided with meaningful employment and the City has convenient processing available.

By operating a recycling drop-off center and curbside recycling, the City gives all residents the opportunity to recycle glass, plastic containers, paper, aluminum, cardboard, and plastic bags with ease. In 2007, Planet Aid began collecting textiles and shoes at the drop-off center and increasing volume has necessitated twice weekly collection. The program continues to grow, with nearly **200 tons** recycled in 2006. It has become so successful that both the curbside and drop-off programs are being expanded. The drop-off containers now need emptying five days a week, up from weekly collection when the center opened. The curbside program has likewise added collection days. The City also provides a clean-up opportunity to their residents twice a year. The clean-up accepts large bulky materials for landfill disposal and deter illegal dumping and unsightly yards.



The City is searching for a larger and more convenient location for the drop-off center. The new center will feature details on correct recycling procedures and photographs to educate the public on the materials accepted.

Location: Clinton County

Date Implemented: 1993

Time Required to Implement: 1 Year

Staff Required: 1 Full Time City Employee and 2 Work Release Prisoners (collecting and hauling)

Involved: Clinco Sheltered Workshop, SWMD-D (funding), and Planet Aid

Contact Info:

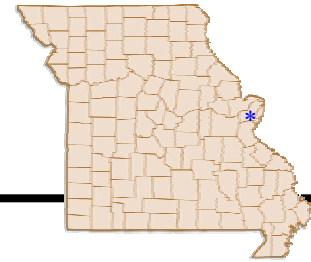
Drew Bontrager, Public Works Director
City Hall
205 N. Main
Cameron, MO 64429
816-632-2177
publicworks@cameronmo.com

Cameron is a recycling leader and was one of the first communities to step forward and announce they want to be part of a great thing—recycling.

Benefits

- **200 tons** of recyclables diverted from landfills in 2006
- Deters illegal dumping
- Jobs created for clients of a sheltered workshop
- Textiles and shoes going to developing countries

City of Chesterfield: Citizens Committee for the Environment



Multiple Commodities

Project Summary

Founded in 1987, Chesterfield established a “Recycling Committee” comprised of volunteer residents to identify and establish recycling opportunities. Prior, recyclables were voluntarily brought by residents to Chesterfield Mall and manually separated by volunteers. The Citizens Committee for the Environment (CCE) was created to take the next step. The volunteer appointees of the CCE donate their time and talent and assist the city government of Chesterfield in expanding recycling.



CCE Committee

At the time, waste haulers were traversing city streets every day of the week. Residents were dissatisfied with this situation for four reasons: trash receptacles were on the curb every day, the noise and air pollution from the trucks, the lack of curbside recycling, and the daily wear and tear on city streets. This resulted in the CCE conducting a one year trash study to develop exclusive hauler bid specifications.

The study resulted in weekly basic service, implemented during the mid-90’s, and standardized pickup for trash and recyclables. According to audits which have been conducted by the SWMD over the last two years, Chesterfield has the state’s highest curbside participation rate, averaging in the 60 percent range! St. Louis County is currently anticipating a **50 percent diversion rate** of solid waste by 2010.

Grants help provide continuing education and recycling opportunities for the public. Chesterfield offers annual recycling drives in April, August and November. Educational materials for commercial and residential recyclers, such as, “What and Where to Recycle...at Home, at Work, and School”, are used to inform the public.

Chesterfield’s elected officials have supported recycling opportunities in many ways. Opportunities have

Location: St. Louis County

Date Implemented: 1988

Time Required to Implement: 1 1/2 years from the initial grant.

Start-Up Costs: Grants

Staff Required: 1 city/staff liaison

Involved: Remains, Inc, City of St. Peters, Web Innovation Technologies, Allied Waste Services and predecessors, Resource Management Company, Dierbergs Market Place, Abitibi, Recycle Challenge, St. Louis-Jefferson Solid Waste Management District (funding), St. Louis County-Dept. of Health, Waste Management Division (funding), Mo.DNR (funding)

Contact Info:

City Administrator
636 537-4000

www.chesterfield.mo.us

Darcy Capstick, Chair/CCE
636 532-2208

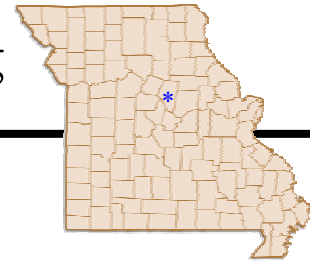
come from competitive grants, public letters, quarterly city newsletter articles, exhibits, special events, and promotional signs. They also support events such as “America/Missouri/Chesterfield Recycles Day” held every November 15th. The annual “Tree, Earth and Arbor Day” includes an e-cycling event. The “April Annual Recycle Drive” includes used athletic shoe recycling and opportunities for those who don’t have regular recycling services.

The City of Chesterfield is fortunate to have a community of citizens who understand that recycling conserves resources, and that the remanufacturing of recyclables lessens the negative impacts on the environment.

Benefits

- Achieves cohesive community conservation
- Demonstrates community stewardship
- Measures increasing participation/volumes over time
- Enhances sustainability and networking
- Utilizes volunteers

City of Columbia: Apartment Recycling



Multiple Commodities

Project Summary

In an effort to provide residents of apartment complexes the same services as those in single-family dwellings, the City of Columbia began its Apartment Recycling Program in 2000. The City has operated a successful curbside recycling program since 1986. Currently 28 apartment complexes participate.

The Apartment Recycling Program started as a pilot project with funding provided by the Mid Missouri Solid Waste Management District-Region H. This grant purchased 4 recycling drop-off containers. MMSWMD funds are also purchasing a mini roll off truck to collect the containers.



Participating complexes have a “designated” recycling day. The container remains onsite for one to three days based on the number of units. Nine recycling containers are rotated throughout the week to 28 complexes that house over 5000 units.

The recycling containers have two compartments: one for commingled containers and the other for fiber materials. Residents may recycle the same materials that are collected curbside or at the drop off sites: corrugated cardboard, boxboard, chipboard, office paper, newspapers, magazines, catalogs and phone books. The containers accepted are aluminum cans, metal food cans, #1 and #2 plastics, and glass bottles and jars.

The Public Works Volunteer Program educates the apartment residents about their recycling opportunities as well as how to recycle properly. This program provides the residents with convenient recycling at their apartment. Prior to this apartment dwellers had to transport the materials to a drop off site.

The City of Columbia is interested in expanding the Apartment Recycling Program and reaching more residents. There is no charge to the complex but they must be able to provide a space for the container on the property. The tonnage recovered from the has increased 20 percent over the past two years.

Location: Boone County

Date Implemented: FY99

Time Required to Implement: 1 Year

Start Up Costs: \$36,685 (1 year programming and 3 containers)

Staff Required: .5 Full Time Employee

Involved: MMSWMD-H (funding) and willing apartment complexes.

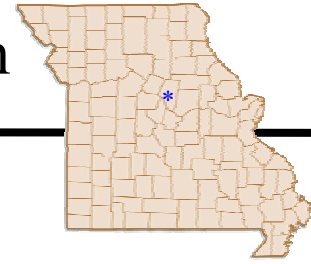
Contact Info:

Layli Terrill – Waste Minimization Supervisor
573 874-6254
LKTerrill@GoColumbiaMo.com
www.GoColumbiaMO.com

Benefits

- Over **1,000,000 pounds** of recyclables collected over 6 years
- Reaches residents without curbside service
- Over **275,000 pounds** diverted from the landfill in 2006
- Over **20%** increase in materials collected in the last two years
- Volunteer involvement
- **28** apartment complexes have on-site recycling

City of Columbia: Compost Program



Cellulose Casings

Project Summary

What do you do with cellulose casings produced from more than a billion hot dogs a year? The answer for the City of Columbia and Kraft Foods is: COMPOST! Kraft Foods produces more than a billion hot dogs a year, generating **32 tons** of casings every week.

It was the goal of the City of Columbia Public Works Department to make the cellulose wiener casings a part of an already successful compost mix. It proves to be an interesting project. The Department of Natural Resources initially approved this



project as a pilot program in November 1999. To date, nearly **12,000 tons** of wiener casings have been composted. The City of Columbia began operating its compost facility in 1991, after state regulation prohibited the placement of yard waste in landfills.

The casings are a cellophane-like material that houses the hotdogs as they travel through the smoke and cooking processes. Without the composting project, this material would be deposited in the landfill.

Kraft Foods segregates the casing from their waste stream in the plant. The casings are processed through a grinder that reduces their size to 2" segments. These segments are transported to the compost facility, three times a week.

Composting 32 tons per week of wiener casings proves to be quite a challenge. The inclusion of wiener casings into the composting mix required major operational changes, including an expansion of the compost site to 15 acres in 2002. To enhance the decomposition process, casings are mixed with ground yard waste.

Luckily, Columbians generate more than **55,000 cubic yards** of yard waste every year. Residents enjoy a weekly curbside pickup of yard waste provided by the City. Other feedstock material comes from lawn care and tree removal companies. All material that enters the site is tracked and weighed at the landfill scales. The site also accepts pallets, untreated lumber, sawdust, and drywall for the same per ton fee.

Windrows of a 50/50 mixture of mulch and casings are turned and watered weekly to enhance decomposition and minimize odors. It takes 4 to 6 months to produce finished compost.

Currently, the compost material is sold in bulk quantities for \$12.00 + tax per cubic yard. It is available at the City's Sanitary Landfill and Compost Facility.

Location: Boone County

Date Implemented: 1999 (Compost Facility opened in 1991)

Time Required to Implement: 6 mo. Mo.DNR approval process, 6 mo. pilot program

Staff Required: 1 Full Time Employees

Involved: Kraft Columbia Foods, Mo.DNR, and EIARA (funding-\$50,000 for equipment)

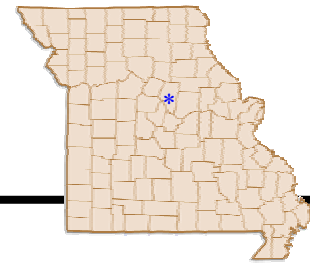
Contact Info:

Richard Wieman – Solid Waste Utility Manager
573-874-6290
RLW@GoColumbiaMo.com
www.GoColumbiaMo.com

Benefits

- Over **1,600 tons** of wiener casings composted annually
- Over **12,000 tons** of casings diverted from landfill over 7 years
- Over **\$183,000** saved in waste disposal costs over 7 years
- Quality compost available for sale to the public

City of Columbia: Convenience Store Recycling



Used Beverage Containers

Project Summary

The City of Columbia implemented its Convenience Store (C-Store) Recycling Program in April 2003, with bins provided by Businesses United for a Cleaner Columbia (BUCC). Currently 41 local convenience stores participate with over **150,000 pounds** of used beverage containers (UBC) collected in less than 4 years.

“The C-Store program is more successful than we anticipated,” says Richard Wieman, Solid Waste Utility Manager for the City of Columbia. “During 2005 and 2006, the C-Store Program has increased its collection tonnage by 5% and 25% respectively.”



Tons Per Year:
2003 (partial year) - 11.2
2004 - 17.6
2005 - 18.5
2006 - 24.3

This program was designed to make recycling of used beverage containers easy for Columbia residents and visitors. The 60-gallon blue bins, lined with a plastic bag, are placed beside gas pumps and trash containers as space allows. Once a week, the city’s Solid Waste Collection Service collects the material. The bag is simply removed, tied, loaded in the truck, and hauled to the city’s Material Recovery Facility for processing.

As of mid-2007, 147 C-Store containers are in use. The mixture of materials collected from convenience stores by volume is approximately, 45% aluminum, 40% plastic, 10% glass, and less than 5% trash.

Location: Boone County

Date Implemented: April 2003

Time Required to Implement: 4 Months

Start-Up Costs: \$10,000 (for 100 bins)

Staff Required: 6 hours per week for collection and processing

Involved: Businesses United for a Cleaner Columbia (funding) and local Columbia Convenience Stores.

Contact Info:

Layli Terrill, Waste Minimization Supervisor
 P.O. Box 6015
 Columbia MO 65205
 573-874-6254
 LKTerril@GoColumbiaMo.com
 www.GoColumbiaMO.com

Carbon Footprint - benefits of recycling 24.3 tons of aluminum cans
Climate benefit = 72 cars not driven for one year
Energy reduction benefit = 867 barrels of oil

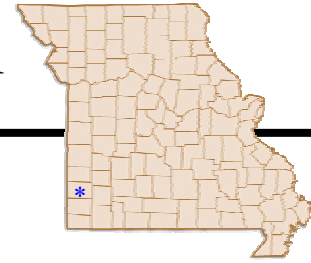


Benefits

- Over **150,000 pounds** of UBCs recycled.
- Over **\$2,400** saved in waste disposal cost for local businesses in less than 4 years.
- Catches containers consumed away from home
- Columbians easily recycle their UBCs at local convenience stores

City of Joplin: HHW Satellite Collection

Household Chemicals



Project Summary

The City of Joplin purchased a used 48 foot storage container decommissioned from a household hazardous waste facility for \$2,250. A professional company moved it from Fayetteville, Arkansas to the Joplin Recycling Center. The container had doors at both ends, a window, an explosion proof continuous running exhaust fan, and one shelf.



The Recycling Coordinator and Recycling Center Attendant attended training classes and worked very closely with HAZ-MERT of Rogers, Arkansas to set up the facility. Various metal and plastic 55 gallon drums and plastic totes were set up in the container. Each container has a “category” sign on it, such as “liquid pesticides.” It was also outfitted with an eyewash station, first aid kit, fire extinguishers, grounding, spill kits, exterior signs, weather-proof padlocks, miscellaneous supplies and shelving.

When several containers are full and economically feasible to be hauled for disposal or recycling, HAZ-MERT lab packs items that need shipping and hauls them to their Rogers facility. HAZ-MERT then sends an invoice and report to the City. Average shipment cost is \$1,500.

Some safe, non-banned items are placed on a reuse shelf for patrons to take. The facility does not take appointments, but is open during regular Recycling Center hours. It is a free service to

residents from McDonald, Newton, Jasper, Vernon and Barton Counties. Commercial hazardous waste is not accepted.

Location: Jasper County

Date Implemented: 2006

Time Required to Implement: 1 year

Start-Up Costs: \$5,000 Direct Costs (does not include staff salaries, overhead and advertising)

Staff Required: 1 Full Time and 1 Part Time Employee

Agencies Involved: Region M Solid Waste Management District (partial funding) and Mo.DNR (partial funding)

Contact Info:

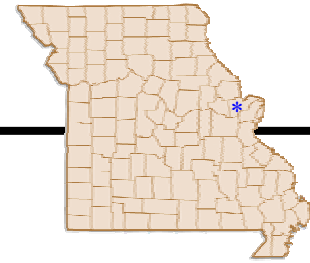
Mary Anne Phillips—Recycling Coordinator
City of Joplin
602 S. Main St.
Joplin MO 64801
417-624-0820 x501
MPhillip@joplinmo.org

Benefits

- Convenient for citizens
- Reuse shelf lowers disposal costs and provides patrons with free items
- More cost efficient than occasional collection events
- Public education
- Hazardous materials diverted from landfills
- Reduces illegal dumping
- Reduces hauling company employees exposure to hazardous materials

City of O'Fallon: Single Stream Recycling

Multiple Commodities



Project Summary

In late 2002, along with a new city-operated environmental services department, recycling in the City of O'Fallon was introduced to residents. In the first two weeks of operation, **119 tons** of recyclables were collected. Within two months, **80%** of residents had signed up to participate in the program. Since then, an average of **430 tons** is recycled each month in O'Fallon.



In 2005, the City upgraded its recycling program to a single stream method – residents no longer had to separate their recyclable items, but simply place them all in one container. Items accepted are: all plastics except #6, aluminum, glass, steel cans, cardboard, and paper.

To help continue the excitement of recycling, a volunteer /staff committee was formed to discuss ideas for further marketing the recycling program. The committee's first Earth Day was held in April 2007. A recycling mascot, named through a community-wide contest, was created, and the O'Fallon recycling brand – Roscoe the Raccoon – was born. Roscoe's image and slogan, "Recycling Our Supplies Conserves Our Earth" has been used in marketing materials including stickers, fliers, fans, posters, etc. The City commissioned a Roscoe

character costume which was worn for the first time by a volunteer in the City's 2007 Fourth of July parade. Roscoe marched alongside a City recycling truck, which was wrapped in artwork featuring his image. The truck and Roscoe will be scheduled in the coming year for appearances at schools, civic organizations and community events, all with the intent of continuing to educate the public about the importance of recycling.

Location: St. Charles County

Date Implemented: 2005-single stream recycling (initial recycling program began in 2003)

Time Required to Implement: About 6 months

Start-Up Costs: \$3,992,551.46 (this also covered costs for the City's brand new trash service and the transfer station built to operate both services)

Staff Required: 26 Employees

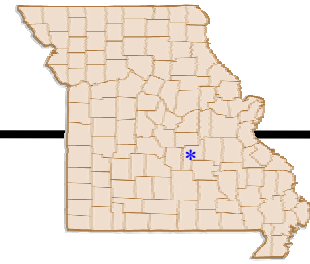
Agencies Involved: St. Louis-Jefferson SWMD (funding-3 grants totaling \$50,500 for supplies, advertising and containers) and Mo.DNR

Contact info: Jim Wenzara, Director, Environmental Services
City of O'Fallon
100 N. Main Street
O'Fallon, MO 63366
636 240-2921
Jwenzara@ofallon.mo.us

Benefits

- Reduces the amount of waste landfilled
- Reduces cost of waste disposal which allows the City to maintain low rates for residential trash collection
- Encourages recycling and raises awareness of environmental issues throughout the community

City of Rolla: Recycling Center



Multiple Commodities

Project Summary

The City of Rolla operates a comprehensive not-for-profit recycling center. The Rolla Recycling Center serves as a local drop-off facility as well as a regional processing facility accepting recyclables from municipal, commercial, and residential programs. In addition to the standard recyclables (paper, cardboard, aluminum and steel cans, glass bottles and jars, #1 and #2 plastics), the RRC also accepts plastic product bags and shrink wrap, rechargeable batteries and cell phones, electronic waste, and lead-acid batteries. RRC is accessible to residents 24 hours a day, 7 days a week.

In addition, the RRC provides residential curbside collection, commercial recycling collection, and multi-family residence recycling. Special collection events for “orphan” wastes are some of the more popular services provided. The Recycling Center has been involved in annual special collections for household hazardous waste (HHW), tire, and electronic waste. Document destruction services are available for a fee. Hundreds of students and adults pass through the RRC each year in the many educational tours conducted.

The Rolla Recycling Center also operates a landscape waste composting site. Lawn clippings, leaves, tree branches, and pallets are ground in a tub grinder and used to produce landscaping mulch and compost.

The mulch and compost is provided to the public free of charge.

Nearly **3,000 tons** of recyclables are processed annually at the Center. Since the RRC operates under the Solid Waste Department, the City avoids the disposal fees for the City generated recyclable material, thus saving over **\$100,000** annually.

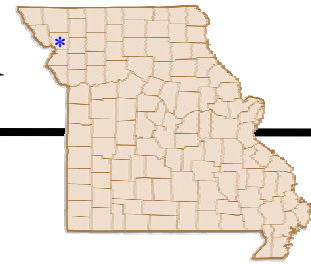


Location: Phelps County
Date Implemented: 1994
Time Required to Implement: 1 year
Start-Up Costs: \$250,000
Staff Required: 5: 2 (office/management) and 3 (in the shop)
Involved: MSWMD - K (funding)
Contact Info:
Brady Wilson
Solid Waste Director
City of Rolla MO
573-364-6693
bwilson@rollacity.org
www.rollacity.org

Benefits

- **3,000 tons** recycled annually
- Savings to Rolla Solid Waste Dept. **+\$100,000/year**
- Landscape waste converted to mulch and compost and provided to the public free of charge
- Convenient curbside recycling and special collections (HHW, tire, electronic waste)
- Recycling center is accessible to residents 24 hours a day, 7 days a week
- Reduced dumping
- Public education

City of Savannah: Recycling Program



Multiple Commodities

Project Summary

In 1995, recycling trailers were placed throughout the Savannah to establish drop-off sites. The program proved to be a success and soon the trailers were not large enough to handle the volume of recyclables.



In 1996, the City began providing weekly curbside recycling collection. The recycling trailers, once utilized as drop-off containers, were put into use for curbside collection. Red curbside recycling bins were made available to the residents. Residents separated their recyclables from their household trash and placed their red bins on the curb on their regular trash day. The program continues to grow with additional recycling bins being distributed. The small trailers have been replaced with two new, larger trailers. With the increase in participation, the City now picks up recycling twice a week. Paper is picked up on a separate day from the other recyclables.

In the beginning Savannah delivered their materials to a processor in Maryville. When the processor closed, Clinco Sheltered Industries in Cameron, began accepting the City's recyclables. Savannah pays Clinco \$200 a month for this service.

Savannah has a population of 4,762. In 2006, the community recycled **170 tons**, an increase of 16 tons over the 2005 tonnage. Among 1,927 households, an amazing **1,130** households participate in recycling. **Fifty-nine percent** of the households sort and separate their household waste for recycling.

Location: Andrew County

Date Implemented: 1995

Time Required to Implement: 1 year

Start-Up Costs: \$13,720 for purchase of two trailers

Staff Required: 1 Part Time and 1 Full Time City Employee

Agencies Involved: Clinco Sheltered Workshop and MSWMD-D (funding)

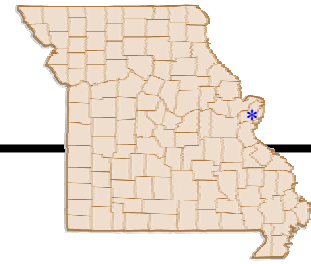
Contact Info: Janice Hatcher
City Hall
402 Court
Savannah, MO 64485
816 324-3315
jhatcher@savannahmo.net

The City of Savannah government officials, city staff and residents are making a difference for our world.

Benefits

- **170 tons** of recyclables diverted from landfills in 2006
- Provides jobs at a sheltered workshop
- High participation rate and increasing volume

City of St. Louis: Informational Kiosks



Education

Project Summary

The City of St. Louis Refuse Division manages 27 drop-off recycling sites, serving approximately 350,000 residents. Based on the quantity of recyclables being deposited at these sites, hundreds of households use them. So, these locations are ideal for reaching residents who recycle, but who might reduce, reuse, and recycle more, if they knew what and how. Also, more households might begin to recycle, if they know the drop-off recycling sites exist.

In advertising, there's a concept known as "point-of-sale," where products or services are promoted at a transaction point. This is done in an attention-grabbing or eye-catching manner. Similar to this is a user bulletin board or directory, like what parks install at trail entrances, where they post flyers and notices; some have a covered pocket from which hikers can remove trail guides. Shopping malls install directories, informing shoppers of where stores or features are located, or updating them about sales and events.



Information kiosks were designed and installed at each drop-off recycling site. They are made of steel, so they include post-consumer recycled content and can be recycled at the end of their life. They are three-sided to catch attention of pedestrians and drivers traveling in either direction. The top half consists of a removable plastic cover screen printed with the City Seal, our agency's name, and "Reduce, Reuse, Recycle." Beneath this cover, display are magnetically mount (e.g., flyers, posters). The bottom half of each side consists of three pockets covered with plastic and are stocked with information residents are free to take.

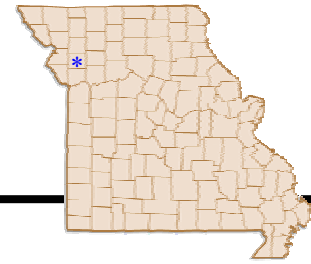
Location: St. Louis County
Date Implemented: 2005
Time Required to Implement: 24 Months
Start-Up Costs: \$69,589.05
Staff Required: 1 Program Manager, 1 Program Specialist, 1 Foreman, 1 Equipment Operator, 1 Concrete Finisher, and 2 Utility Workers
Involved: Mo.DNR (funding)
Contact Info: Jill Hamilton
Recycling Program Manager
City of St. Louis Refuse Division
4100 South First St.
St. Louis MO 63118
314 353-7176
Fax 314 352-5627
recycle@stlouis.missouri.org
<http://stlouis.missouri.org/citygov/recycle>

Benefits

- Attracts attention to drop-off recycling sites
- Increased tonnage and volume of recyclables diverted from waste stream
- Improved communication efforts with residents by making information more readily accessible
- Public education

Clinco Industries, Inc.:

Sheltered Workshop Processing



Multiple Commodities

Project Summary

Clinco Industries is a not-for-profit (501 C 3) corporation with the main purpose of providing work for people with disabilities. Clinco processed newspapers for recycling from the time they opened in 1976 and currently accepts cardboard, office paper, newspaper, magazines, plastic, glass, aluminum and metal cans.

In the early 1990's, Clinco nearly halted their processing due to the expense and labor involved. Region D Solid Waste Management District asked Clinco to conduct a study of the surrounding communities to assess their interest in recycling and learn which had active recycling programs. At the same time the



District encouraged the five cities and two counties involved to study and assess their citizen's interest in recycling and develop programs to answer those interests. The communities found a variety of ways to develop and fund recycling programs and use some of those funds to pay Clinco to process their recyclables.

Tons processed by year: 2002 - 546.11 2003 - 753.34 2004 - 889.57 2005 - 841.30 2006 - 823.98

Clinco is considered the recycling center for all of Region D. Each week, communities transport their materials to Clinco where the trailers are unloaded and the materials processed. Through the years grants have made expansion of the program possible, and today 30 people with disabilities and three staff members are employed in Region D processing recyclables.

Date Implemented: 1976 and expanded in early '90s

Location: Clinton County

Employees: 3 Full Time Employees and 30 Workers with Disabilities

Involved: Region D Solid Waste Management District (funding) and Mo.DNR (funding)

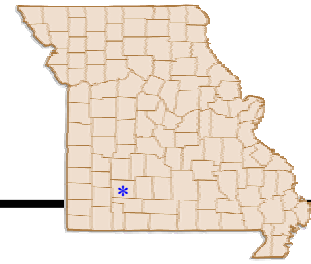
Contact Info:

Evelyn Clemons, Manager
1205 W. Grand
Cameron, MO 64429
Phone: 816-632-3966
Fax: 816-632-3248
clinco@cameron.net

Benefits

- Creates jobs
- Diverts recyclables from landfill
- Provides processing of materials to surrounding area
- Collaboration between cities, counties, and a nonprofit

Computer Recycling Center: E-Scrap Recycling



Electronic Equipment

Project Summary

The Computer Recycling Center opened in 2001 and has become a leader in e-scrap recycling in Missouri. In 2006, the CRC became the first, and only, State of Missouri Certified Resource Recovery Facility for E-Scrap. Over the years, Ken Reiss, President, has had to adapt to the quickly evolving e-scrap market and tackle global electronic equipment disposal issues.



Monitors have always been the focus, reports Reiss, but they accept all types of e-scrap. The list of accepted materials includes Televisions, PC's, Keyboards, Mice, Scanners, Printers, Speakers, Cell Phones, LCD Monitors, VCR's, DVD Players, Stereos/ Radios, Ballasts, Wire, and various other e-scrap. All items are accepted free of charge, except televisions. There is a \$20.00 fee for televisions to cover the costs associated with the safe disposal of the lead in the CRT glass. The components containing the lead are shipped to the Doe Run Company in Boss, MO, for proper recycling. Materials in scrap electronic equipment that have value in the recycling markets are sorted by type for scrap sales.

The only way to ensure the destruction of sensitive materials is to physically destroy the hard drive. CRC processes all hard drives, data disks, and other sensitive material through its shredding machines free of charge.

CRC operates a closed facility, de-manufacturing all e-scrap in house. Using hand tools, two shredding machines, and a bailer, the facility processes more than **44 tons** of scrap a month. CRC currently recycles about **98 percent** of its electronic scrap. The near future could see the CRC reach their goal of 100 percent.

CRC has a strong regional commercial customer base, but has also worked for the U. S. Dept. of Energy, Dept of Justice, the Missouri Dept. of Transportation, Philips Consumer Electronics, Boise Cascade, and various state agencies. Reiss says businesses and municipalities need CRC's services because laws prohibit them from disposing of electronic waste in landfills.

With a staff of seven full-time employees, CRC will work with any community or organization on e-scrap events. The events, generally lasting one or two days, allow the community to bring their e-scrap to a central location for recycling. CRC has participated in collections in Springfield, Branson, Neosho, Rolla and Greenfield, and worked in partnership with Missouri Solid Waste Management District Regions D, F, K, M, N, O, & P.

Location: Greene County

Date Implemented: 2001

Employees: 7 Full Time Employees

Involved: EPA, DNR, City of Springfield, and SWMD-Region O (funding)

Contact Info:

Ken Reiss, President

1434 N. National

Springfield MO 65802

417 866-2588

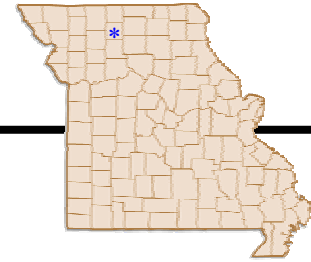
www.computerrecyclingcenter.org

computerrecyclingcenter@hotmail.com

Benefits

- State certified resource recovery facility for e-scrap
- Guaranteed destruction of sensitive material
- Diverts **44 tons** of electronic scrap a month from landfills
- Employs **7** full time employees
- Hazardous waste kept out of the environment

Coon Mfg., Inc: Plastic Recycling



Waste Plastic

Project Summary

Coon Mfg, Inc., located in the rural North Missouri town of Spickard, was founded by Bill Coon in 1974. Known in the early days as Coon Mfg. & Distributing, they originally manufactured agriculturally related items such as hay hauling trailers and bale stabbers for tractors and pick up trucks.

In 1977, Coon Mfg. entered the plastic rotational molding business with items such as hog feeders. They also manufactured a line of plastic mailboxes in the shape of bulls, horses, pigs and a “John Deere” green tractor. Eventually, a line of larger plastic rotationally molded products such as boat dock floats, septic tanks, hunting shacks, storm shelters was added and many custom molded products for outside customers under a private label.



In 1989, there was an urgent desire amongst the general public to find a solution to the growing amount of plastic entering landfills. Bill Coon wanted to see if it was possible to remanufacture used plastic into a useful product. He began experimenting with different types of plastic; regrinding and finding the correct melting points for extrusion into a sheet product. Because of plastics ability to repel moisture, non porosity, and resistance to harboring diseases, it is the ideal product to use in the construction of animal confinement buildings, where sanitary and easy clean up conditions are needed. Mr. Coon, seeing the popularity of the plastic sheeting, designed a process to corrugate the sheets so it can be used on buildings, much like corrugated metal roofing. This material out performs metal because it does not rust or rot.

Over the years, Coon Mfg., Inc. has applied for, and has been awarded grants to help in its expansion. The Mo. Department of Natural Resources, as well as EIARA, have awarded funding for the physical expansion of the factory and equipment purchases (currently receiving \$24,876 for a second hydraulic arm).

During peak production from spring to mid-summer, Coon Mfg., Inc. employs **20-25 people** and may run up to three 8 hour shifts per day. Coon Mfg. diverts approximately **898 tons** of plastic from landfills per year.

Location: Grundy County

Date Implemented: 1989

Employees: 20 to 25 Full Time Employees

Involved: Mo. DNR (funding) and EIARA (funding)

Contact Info:

Bill Coon
P.O. Box 108
78 NE 115th St.
Spickard, MO 64679
800 843-1532
Fax: 660 485-6122
coonmfg@grm.net

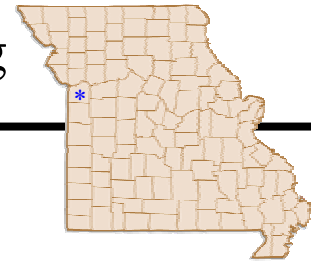
Carbon Footprint - benefits of recycling 898 tons of mixed plastics

Climate benefit = 298 cars not driven for one year
Energy reduction benefit = 8,197 barrels of oil

Benefits

- Diverts **898 tons** of plastic from landfills every year
- Employs **20 to 25** people
- Converts waste into marketable products
- Creates jobs

Creative Candles: Companywide Recycling



Multiple Commodities

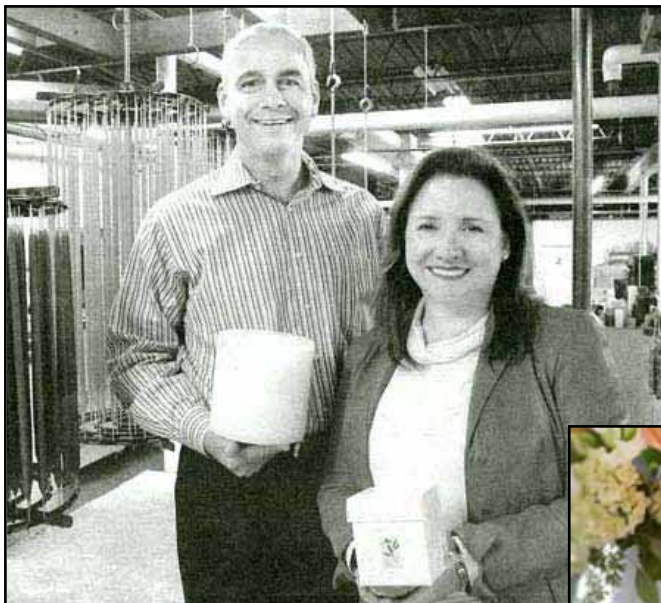
Project Summary

Creative Candles is a small manufacturer that has been in operation since 1961. In 2005, Ken Weiner purchased the company, and his wife, Pam Fleischer, sold her yard waste hauling company, Nature's Rubbish, to join him in running the business.

One of the first things they did was hire Bridging The Gap, a local environmental agency, to help them set up a company recycling program. Bridging The Gap studied their operation, surveyed the employees, and helped prepare for recycling when the company moved to a new plant in 2006.



The survey showed that employees responded positively in favor of recycling, and after the move Creative Candles started recycling plastic, aluminum, glass, cardboard, paperboard and wax as well as



paper. Additionally, the company recycled **3.5 tons** of old packaging, saving **\$1,575** in hauling costs, diverting it from the landfill, and saving themselves the trouble of moving it to the new plant.

Annually, the company recycles **5.6 tons** or **62.5%** of the waste they generate. They also save and store the leftover wax at the end of each color run for reuse, an unusual practice in the industry. Pam, herself, takes discarded glass to a recycling drop off area. These efforts have reduced their trash collection from once a week to every other week with projected savings of **\$2,650** a year.



Employees and owners work as a team to recycle and their efforts bring them several lunches a year, paid for by the recycling program.

Location: Jackson County

Date Implemented: 2005; expanded 2006

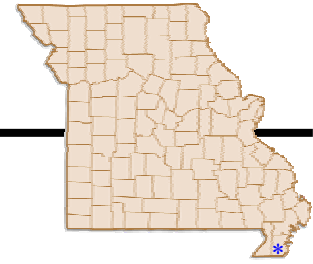
Employees: No additional staff required

Contact Info: Ken Weiner and Pam Fleischer
3218 Roanoke Rd
Kansas City MO 64111
816 474-9711
800 237-9711
pam@creativecandles.com
www.creativecandles.com

Benefits

- Win-win situation for owners, employees, and the community
- Projected annual savings of **\$2,650**
- Diverts **62.5% (5.6 tons)** of waste from landfills
- Reuse of materials instead of disposal

Delta Fibers: Waste into Products



Cotton Gin Waste

Project Summary

Delta Fibers alleviates a burden for regional cotton producers by purchasing their cotton motes. The motes are the waste product from the cotton ginning process which separates the best cotton fiber from the harvested cotton bales. The motes contain small immature seeds with attached fiber. DF processes the motes with a de-linting machine, changing the physical state of the motes to become a usable product. The collected cotton is a lower grade cotton called gin mate fiber and is sold for use in non-woven products.

DF then re-gins the the motes. The re-ginning process runs the mote through the cotton gin again leaving a by-product referred to as a pill. The pill can be sold for various products such as stuffing for automobile seats or futon mattresses.

Even with re-ginning a considerable amount of gin waste remains. The waste created can consist of a minor amount of cotton lint mixed mainly with fibrous debris including cotton bur, bark, leaf matter, twigs, crushed seed, and even grass and weed seeds. Delta Fibers composts the waste into a valuable soil amendment.

Location: Pemiscot County

Date Implemented: 2005-2006

Time Required to Implement: 6 months

Start-Up Costs: \$5,625.00

Staff Required: 2 Full Time Employees

Involved: EIERA (funding) and Missouri Enterprise

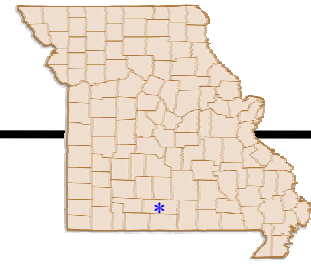
Contact Info:

Jeff Pierce – Owner
1706 County Rd 344
Caruthersville, MO 63830
573 333-4454
jeffpierce57@sbcglobal.net

Benefits

- **200 tons** of gin waste composted each year
- Waste converted to a valuable soil amendment
- **Millions of dollars** saved in disposal each year
- Only company in Missouri capable of performing the re-gin process

DoCo, Inc.: Waste to Mulch



Wood Scrap

Project Summary

DoCo, Inc. is a sheltered workshop that manufactures goods and processes recyclable materials. In 2004, DoCo processed approximately **200 tons** of recyclables and in 2006 close to **400 tons**. It is expected that tonnage will continue to increase.

DoCo is currently working with Copeland Manufacturing to provide recycling services to the company for \$520 per month. DoCo collects all of the wood scrap that Copeland produces which includes crates, broken pallets, skids, and other wooden packing materials.

Originally, DoCo intended to chip the wood to use as a fuel source for heating their facility, but the supply of wood waste received was larger than was required. DoCo receives 40-50 wooden crates per day weighing about 60 pounds each for a total of **1.5 tons** a day. DoCo decided to produce mulch from the waste to be used around the facility and to sell to the public.

DoCo requested the assistance of Missouri Enterprise to help in conducting an equipment and end market review to determine the feasibility of turning the wood waste into wood mulch and what equipment would be needed. It was determined that by purchasing some equipment, the potential was there to produce a marketable product that would become profitable to the workshop. The review of the market showed the potential need for such items in the Douglas county area.

<i>Tonnage FY 2006:</i>	
<i>Cardboard</i>	<i>169.72</i>
<i>Paper</i>	<i>110.6</i>
<i>Aluminum</i>	<i>15.34</i>
<i>Glass</i>	<i>15</i>
<i>Tin cans</i>	<i>12.34</i>
<i>#1 PET</i>	<i>5.57</i>
<i>#2 HDPE</i>	<i>7.97</i>
<i>Film</i>	<i>0.38</i>
<i>Copper</i>	<i>23.39</i>
<i>Steel</i>	<i>34.9</i>
<i>Total</i>	<i>395.21</i>



The wood mulch project has been surprisingly successful in the amount of material diverted from landfills; currently accepting scrap wood in the form of pallets and crates from 6 different sources from as far as 60 miles away. In the first year **\$15,000** was made from wood removal service fees, crate and pallet resales, and mulch sales.



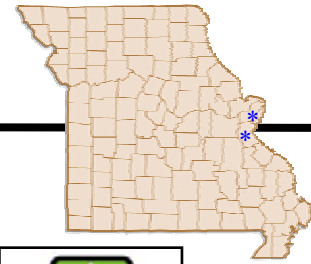
Location: Douglas County
Date Implemented: 2006
Time Required to Implement: 6 months
Start-Up Costs: \$11,050.00
Employees: 1 New Full Time Staff and 3 New Handicapped Workers (wood recycling project)
Involved: EIARA (funding-\$50,000 for equipment) and Missouri Enterprise
Contact Info:
Jim Brown – Manager
1306 NW 9th Avenue
Ava, MO 65608
417 683-3915
DoCo@getgoin.net

Benefits

- Waste diverted from landfill
- Heating source for the workshop
- New product created from waste
- Reduces disposal cost to companies
- Jobs created

e-cycle St. Louis: E-Scrap Recycling

Consumer Electronics



Project Summary

In July 2003, St. Louis County Department of Health joined co-sponsors from Jefferson County, St. Charles County, and the City of St. Louis to implement a sustainable consumer electronics recovery program region-wide. Through a grant from St. Louis-Jefferson Solid Waste Management District and the Mo. DNR, the St. Louis Regional Partnership for Electronics Recovery—a multidisciplinary task force—developed *e-cycle St. Louis* to serve area residents and businesses.

After a 2 ½ year task force process, *e-cycle St. Louis* was launched on February 7, 2006 at a highly publicized press conference, with ten registered locations throughout the District. Several of the host sites have doubled their business since program inception.



Recognition Award Recipients at MORA 2006 Annual Conference: Mike Duvall (St. Charles Co.), Kara Dunnam (Jefferson Co.), Jill Hamilton and Elizabeth McAdams (St. Louis City), Rebecca Shelby (St. Louis-Jefferson SWMD), and Mike Menneke (MDNR-HWP).

The partnership established a registration process for *e-cycle St. Louis* locations to ensure environmentally safe recovery of electronics and a regional education and promotion program including a website at www.ecyclestlouis.org, printed materials, and media publicity efforts. *e-cycle St. Louis* locations and program partners can update website information and submit program results on-line. The program materials are also available for downloading from the website. All of these features enhance the on-going sustainability of the program.

Location: St. Louis and Jefferson Counties and City of St. Louis

Date Implemented: February 2006

Time Required to Implement: 2 ½ years

Start-Up Costs: Approximately \$95,000

Staff Required: Regional co-sponsors (5)

Involved: St. Louis-Jefferson Solid Waste Management District (funding) and Mo. DNR (funding)

Regional Co-sponsors: City of St. Louis Refuse Division, Jefferson County Solid Waste Division, Saint Louis County Health Department Solid Waste Management Program, St. Charles County Division of Environmental Services

Task Force: state & local gov't, private businesses, non-profits (approx. 25 entities)

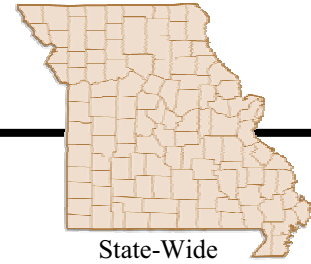
Contact Info: Laura Yates, Coordinator
4562 Lemay Ferry Rd.
St. Louis MO 63129
314 615-4035
lyates@stlouisco.com

e-cycle St. Louis has garnered national media attention and numerous inquiries from other agencies interested in keeping old or unwanted electronics out of landfills. The program co-sponsors will continue to monitor the locations and investigate additional options to expand the regional program for long-term sustainability.

Benefits

- Long-term sustainability
- Model program for other communities
- Recipient North American Hazardous Materials Management Association 2006 Public/Private Partnership Program Award
- Collection locations doubling business (from residents and business customers)
- Diverts materials from landfills
- Hazardous materials kept out of the environment

EIERA: Market Development Program



Financing

Project Summary

The Environmental Improvement and Energy Resources Authority (EIERA) is a quasi-governmental agency that serves as the financing arm of the Missouri Department of Natural Resources. In 1990, Senate Bill 530 authorized the EIERA to establish the Missouri Market Development Program to encourage the development of markets for recovered materials.

The Missouri Market Development Program provides financial assistance to start-up and existing Missouri businesses to redirect waste to serve as raw materials to make products that are purchased and used by consumers. This helps ensure that recycling will expand its role in economic development for Missouri, contribute to a quality environment, conserve Missouri resources and create Missouri jobs.

The Missouri Market Development Program also works directly with Missouri manufacturers to overcome technical barriers to increasing the use of recovered materials through customized programs in areas such as plant layout, product feasibility, market research and product design and development.

Examples of the financial assistance projects range from an award of **\$45,656** to Missouri Biofuels, LLC to purchase equipment needed to produce biodiesel from waste cooking oils to **\$50,000** awarded to J & J Industrial Supply to purchase a rag separating machine that will increase the productivity of its textile recycling operation.



The technical assistance project has awarded **\$4,620** to Alternative Community Training, Inc. to research markets for recovered videotapes and determine the feasibility of recycling these materials and **\$6,808** to Green Forest Engineered Products, LLC to investigate additional sources of recovered polypropylene, research new product markets and develop a product brochure.

Since its inception, the Missouri Market Development Program has awarded more than **\$7 million** in financial assistance to nearly **150** Missouri projects and has completed technical assistance projects for more than **170** Missouri establishments.

Date Implemented: 1990

Location: Statewide

Start-Up Costs: \$800,000 annually from the Mo.DNR Solid Waste Management Fund

Other agencies Involved: Mo. DNR and Mo. Department of Economic Development

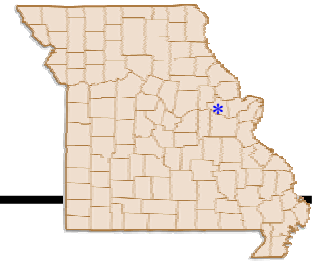
Contact Info:

Kristin Allan Tipton, Development Director
EIERA/Missouri Market Development Program
PO Box 744
Jefferson City, MO 65102
(573) 526-5555
kristin.allan.tipton@dnr.mo.gov

Benefits

- Building a sustainable infrastructure of manufacturers and purchasers of recycled content products
- Creating jobs
- Diverting waste from landfills
- Leveraging additional investment in Missouri businesses
- Businesses avoid waste disposal costs

Environmentally Sound Products: Vermicomposting



Newspapers, Manure, and Produce Scraps

Project Summary

The Environmentally Sound Products Company began worm farming on Sept 1, 2003 when 100 pounds (100,000 worms) of worms arrived. The next 19 months was spent increasing the “herd” and harvesting worm castings. Major expenses to start the business were the worms, a harvester, and bins.

Vermicomposting (composting using worms) is beneficial for our environment. Worms eat food waste that would otherwise be disposed of in landfills and turn it into a valuable organic plant food, eliminating the need for chemical fertilizers.



To produce quality castings, worms should be fed a mix of foods. The worms live in a bedding of shredded newspaper and are fed them aged horse manure and produce scraps from a local grocery store. The results from a soil test of the worm castings were very promising.

ESP sells other products in addition to worms and their castings such as a home vermicomposting kit, recycled content cloth shopping bags, Missouri corn bags, the book “Worms Eat My Garbage” by Mary Appellhoff, and plants and produce raised using worm castings. Future plans include expanding into other areas such as solar power. Building a passive solar home has provided experience with solar energy.

Products are sold at local Home & Garden Shows, Earth Day Festivals, at the Warrenton Farmers Market, and on the internet. Educational presentations on Vermicomposting are given to clubs and other groups.

Location: Warren County

Date Implemented: 2003

Time Required to Implement:

Start-Up Costs: \$10,500

Contact Info: Irvin and Kathleen Huser
Environmentally Sound Products of Missouri
17736 Keller Dr.
Wright City, MO 63390
(636) 456 3066
ESPofMO@Earthlink.net

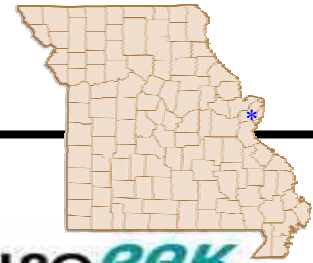
ESP is a family owned and operated business. Irvin and Kathleen Huser are partners with their daughter and son-in-law, Kevin and Tammy Keller. Irvin does most of the day to day feeding and harvesting of the worms. Kathleen does the marketing, accounting and presentations. Kevin and Tammy provide help when needed.

Benefits

- Diversion of materials from landfills
- Value added product produced for sale
- Environmental education offered to the public

EnviroPak: Paper Recycling

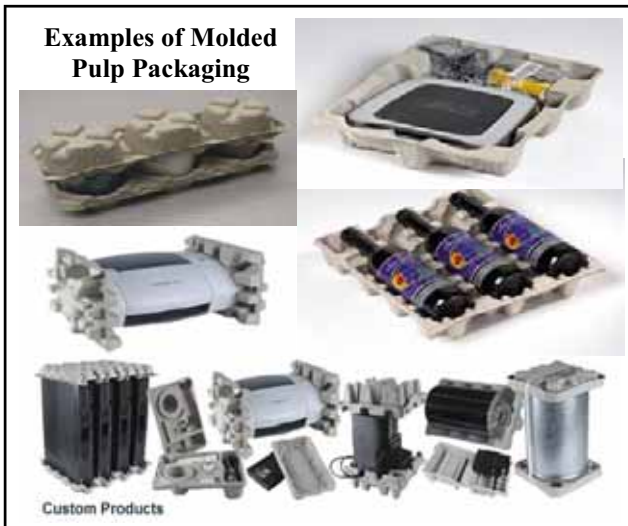
Newspapers



Project Summary

EnviroPAK Corporation has been instrumental in the environmental movement since 1996. They produce molded pulp protective packaging by recycling newspapers in their Earth City plant. With 3 certified suppliers, EnviroPAK is able to recycle up to **10 tons** of paper per day, and receives several truck loads of recycled newspaper per week.

The Molded Pulp packaging that EnviroPAK produces can also be recycled, and it is compostable as well as **100% biodegradable**. In short, they produce sustainable packaging materials from a renewable resource. You have seen this packaging before, just think of the grey trays that eggs are packed, or a 4 cup drink carrier that you would receive from a fast food chain. However, EnviroPAK typically markets their product to industrial customers who produce cable modems, CD and DVR players, printers, beverages, and automotive parts, to name a few.



For every **ton** of newspaper that EnviroPAK recycles, we save **17 trees**, **3.06 cubic yards** of landfill space, **463 gallons** of oil, **6953 gallons** of water, **4077 Kilowatt hours** of energy, and **587 pounds** of air pollution.

EnviroPAK has enjoyed so much success, that they are finalizing plans to increase their capacity by **100%**, through an expansion and deployment of a third production line at a second location in St. Louis County.

Location: St. Louis County

Date Implemented: 1996

Time Required to Implement: Roughly 9 months from ground breaking to the first production

Start-Up Costs: Several Million dollars

Staff Required: There are over 50 part and full time employees at the existing plant, with another 10-20 to be hired for the soon-to-open second location.

Involved: Small Business Administration (funding), St. Louis Economic Development Council (funding), and EIERA (funding-\$50,000)

Contact Info: Bill Noble, V. P. of Sales & Marketing
4135 Galley Court
Earth City MO 63045
Phone (314)739-1202
Email: sales@enviropak.com
www.enviropak.com

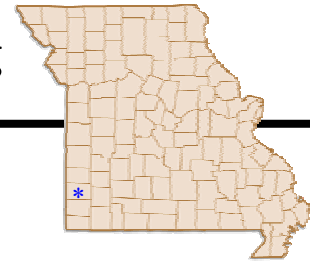
Over the past 2 years, EnviroPAK has recycled enough newsprint to prevent the equivalent space of nearly 14,000 pick-up trucks from going to a landfill. In just one year alone, over 11,000 homes could be powered by the energy savings afforded by this recycling effort. Since EnviroPAK's inception, they have saved as much oil as the Exxon Valdez spilled in Alaska.

Benefits

- Saves nearly 151,000 gallons of oil per year
- Diverts waste from landfill
- Reduces use of energy, trees, and water
- Reduces air pollution
- Produces marketable product from waste
- Creates jobs

Fiberlite Technologies, Inc.: Paper Recycling

Newsprint, Cardboard Trimmings, and Envelope Shavings



Project Summary

Fiberlite Technologies, Inc. (FTI) began manufacturing wood fiber cellulose insulation in 1985, well before “green” building products became popular. Twenty years later, the company recycles more than **twenty million pounds** of paper annually. The company can currently exceed in one week its production totals during the entire 1985 production year!




Fiberlite Technologies, Inc

FTI’s cellulose insulation is manufactured using post-consumer and post-industrial recycled paper and borate fire retardants. Its feedstock includes newsprint, cardboard trimmings and envelope shavings. FTI collects its feedstock through brokers from recycling centers located within 300 miles of the plant and local donations. The manufacturing process requires a minimum of **80%** recycled paper in the finished product. Fiberlite insulation does not contain formaldehyde, asbestos, ammonia or other Volatile Organic Compounds (VOC).



The benefits of cellulose insulation are numerous. This loose-fill product prevents air infiltration and creates a tight building envelope. As a result, homeowner’s utility bills are lower and they can downsize their HVAC units. By incorporating borate fire retardants, FTI has shown that its product actively prevents the germination of mold spores and is treated to protect against targeted insect infestation. This product is also supported by a product warranty certificate for the lifetime of the building structure.



Carbon Footprint - benefits of recycling 10,000 tons of paper
Climate benefit = 8,409 cars not driven for one year
Energy reduction benefit = 39,977 barrels of oil

Location: Jasper County

Date Implemented: 2004-2005

Time Required to Implement: Three (3) months

Start-Up Costs: Approximately \$65,000

Employees: Over fifteen (15) Full Time Employees

Agencies Involved: EIARA (funding-\$50,000 for equipment) and SWMD-Region M

Contact Info:

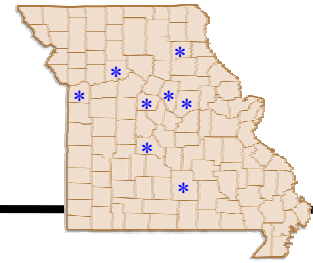
Shan Maitra
3605 E. 25th St.
Joplin MO 64804
800-641-4296

Green building products are intended to lower energy usage, consist of recycled material, provide long term sustainability, and improve indoor air quality. FTI cellulose insulation was providing these product qualities before green products were defined!

Benefits

- **Millions of pounds** of paper recycled annually
- Provides value added benefits for homeowners
- Reduces energy usage in building structures
- Creates jobs

Galamba Metals Group, LLC: Metal Processing



Vehicles to Appliances

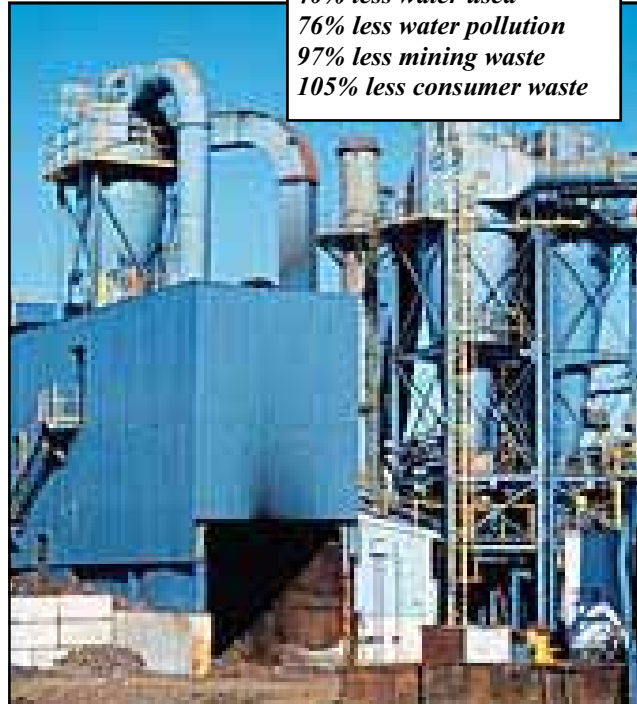
Project Summary

Galamba Metals is the mid-west's largest full service scrap processor. Headquartered in Kansas City, Galamba serves the surrounding states of Arkansas, Iowa, Kansas, Nebraska and Oklahoma in addition to their home state of Missouri. Their eight Missouri scrap yard locations are in Holts Summit, Linn Creek, Columbia, Booneville, Kansas City, Clinton, Carrollton, and Clarence. They also operate six scrap yards in Kansas and one in Arkansas.

Galamba buys tons of scrap metal at their 15 locations every day. Items from old vehicles to appliances are eventually recycled and many tons are diverted from the landfills. Galamba also offers other services such as mobile car crushing, industrial scrap management, and transportation services. This network offers a unique ability to streamline processes and pass the benefits on to customers and consumers.

Galamba has worked hard to maintain *and* integrate this network by focusing on a strong work ethic, determination, close attention to trends, and an ongoing commitment to technology. The focus demands experienced and friendly account executives, inspectors, customer service professionals, dispatchers, and drivers. It requires continually refining processing to consistently bring superior products to the marketplace.

Compared to virgin ore, recycling scrap metal accounts for:
80% less air pollution
40% less water used
76% less water pollution
97% less mining waste
105% less consumer waste



Location: Jackson County and eight Missouri scrap yard locations

Date Founded: 1977

Employees: 400 +

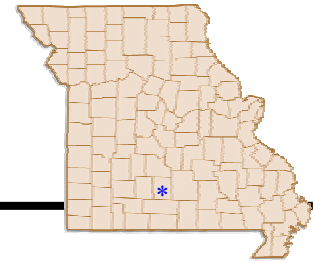
Contact Info:

3005 Manchester Trafficway
Kansas City, MO 64129
816 861-2700
Fax: 816 861-7670
www.galambagroup.com

Benefits

- Encourages good environmental practices
- Aids assessment of the overall life cycle of products and understanding of materials
- Supports the management of the life cycle of products and stewardship of materials
- Is consistent with scientific knowledge and technical practices
- Reflects economic realities without creating market distortions that impede environmental objectives

Grisham Farm Products, Inc.: Recycled Food



Commercially Generated Food Waste

Project Summary

On U.S. 63, near Houston, there is a road sign that says a community called "Success" is 16 miles to the west. But a real success story is located a few miles down the road on a 380-acre farm.

Fruit Loops, red and green ice cream sprinkles, curly pasta, and potato chips are welcomed at the front door. "We take all of it," said Lexie Grisham, president of Grisham Farm Products, Inc., referring to the food waste he uses in the production of a commercial animal feed.



Grisham and his son have 32 trucks on the road to collect dry and wet food wastes from stores, restaurants, and wholesale outlets in Missouri and nearby states. At the plant, the dry animal feed is produced using a heating process that reaches 500 degrees. The feed is loaded onto trucks and shipped to Tyson Foods, the primary customer. Each month, Grisham Farms produces **11 million pounds** of animal feed.

In 2005, Grisham Farms received funding from EIARA. Grants were awarded from the Missouri Market Development Program from both the Financial Assistance and Technical Assistance programs. This allowed Grisham to increase diversion from 57,000 lbs. to **135 million lbs.** annually and to increase the number of employees from 34 to **68**.

Location: Wright County

Date Implemented: 2004

Time Required to Implement: 2 years

Staff Required: 68 Full Time Employees

Agencies Involved: EIARA (funding-\$6,500 for feasibility study and \$46,275 for equipment)

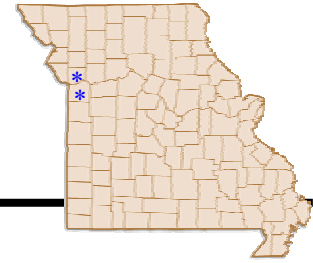
Contact Info:

Lexie Grisham
Grisham Farm Products, Inc.
7364 Newkirk Rd.
Mountain Grove, MO 65711-2540
417 746-4834
GFPInc@fidmail.com

Benefits

- Diverts in excess of **135 million pounds** of waste annually
- Creates jobs
- Produces a marketable product from waste

Hallmark Cards, Inc.: Environmental Efforts



Multiple Commodities

Project Summary

In 1943, Hallmark cards started recycling paper waste from their printing operations, and in 1990 they initiated their Corporate Waste Reduction program. Now, they recycle over **58 million pounds** of paper and corrugate annually and are a leader in corporate sustainability.

Environmental efforts have paid off in a **70%** reduction in solid waste and a **90%** reduction in hazardous waste since the early 1990s. There is ongoing recovery of a variety of materials for recycling: plastics, wood, metal, printing plates, foil dies, labels, stretch wraps, magnesium foil dies, etc. Four of Hallmark's popular greeting card lines are printed on recycled stock and Party Express from Hallmark plates contain 78% recycled paper. Corrugated containers and folding and set-up boxes contain recycled fiber as well.



Hallmark is seeking new and sustainable ways to minimize its business impact on the environment. Efforts are underway to reduce packaging (7.53 million pounds, cumulative), reduce energy and waster use, obtain 100% of paper from sustainably managed forests, and improve the recyclability of its products. Hallmark strives for environmental responsibility with many ongoing projects that promote sustainability, direct energy reduction, water conservation, and clean air. The company partners with national and state environmental groups, including the Kansas City By-Product Synergy Initiative, and the Environmental Protection Agency's WasteWi\$e and Energy Star Building programs. Current Hallmark projects include food waste composting, the installation of one Kansas City's 10,000 Rain Gardens in fall 2007, and activities to encourage employees to reduce, reuse and recycle.




Location: Jackson County, Clay County and locations in Kansas and Connecticut

Date Implemented: Paper recycling since 1943; Corporate Waste Reduction Program since 1990

Involved: Kansas City By-Product Synergy Initiative, National Recycling Coalition, Missouri Recycling Association, Business for Social Responsibility, Environmental Excellence Business Network, EPA Climate Wise & Waste Wise Programs, US Green Building Council, Energy Star Building Program, and National Environmental Managers Association.

Contact Info:
Rick Robson, Environmental Chemist
816 274-3748
rrobso1@hallmark.com

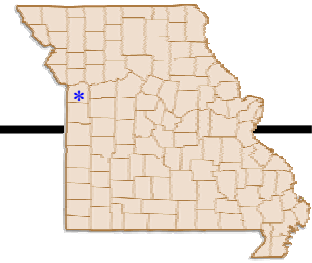


Carbon Footprint - benefits of recycling 58 million pounds of paper
Climate benefit = **24,387 cars not driven for one year**
Energy reduction benefit = **115,934 barrels of oil**

Benefits

- Energy saving programs yield **\$1 million** savings annually since 1995
- **70%** reduction in solid waste since 1990
- **90%** reduction in hazardous waste since 1990
- **58 million lbs.** of paper recycled annually
- Over **7 million lbs.** of packaging reduced to date
- Uses recycled materials in manufacturing of products

Hallmark Cards, Inc.: Composting



Food and yard waste

Project Summary

Starting early in 2006, Hallmark began sending food waste from their headquarters Crown Room employee cafeteria to Missouri Organic Recycling, a local composting facility. Hallmark joins other organizations in the FRED (Food Residuals Environmental Diversion) Program operated by MOR in Kansas City. Food waste is blended with carbon rich wastes and yard wastes to produce Nature Wise Compost which is then sold to businesses and individuals. (See <http://www.missouriorganic.com/aboutus.html>)



Collaboration for this project was inspired by the Kansas City By-Product Synergy Initiative (BPS), administered by the Environmental Excellence Business Network, part of Bridging the Gap, a not-for-profit environmental organization based in Kansas City. There are over a dozen members in the BPS project, including both Hallmark and Missouri Organic, all seeking opportunities for landfill diversion, process improvements, and other ways to convert industrial waste into value added products.

Phase I of the project at Hallmark converted approximately **50 tons** of food waste per year. Phase II began in August 2007 and increased collection to 150 tons of food waste annually.

Hallmark grounds crews are able to use the compost in landscape projects including one of the Kansas City 10,000 Rain Gardens installed in fall of '06. This project is a great example of “closing the loop” by converting a waste into a valuable raw material.

Location: Jackson County

Date Implemented: 2006, expansion in 2007

Time Required to Implement: Logistics worked out in one meeting; collection started in one week.

Start-Up Costs: <\$1000 for containers

Staff Required: No additional staff required. Facility limitations (dock space) can affect material handling but the operation is not significant extra effort.

Involved: K.C. By-Product Synergy Initiative and Missouri Organic Recycling

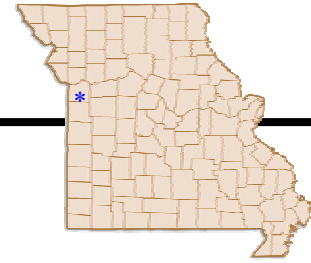
Contact Info: Rick Robson
Environmental Chemist
816 274-3748
rrobso1@hallmark.com

Benefits:

- Environmental improvement
- Diverts organic waste from landfill
- Waste converted to marketable product
- Storm water run-off reduction and filtration

Harry S. Truman Sports Complex: Stadium Recycling

Cardboard, Aluminum, and Plastic



Project Summary

When Kansas City hosted the annual MORA conference in 2001, recycling advocates also formed a team of Jackson County officials, representatives from the Chiefs and Royals, and Tim Warren of National Association for PET Container Resources (NAPCOR). The goal was waste reduction in western Missouri's largest sports facility, the Harry S. Truman Sports Complex containing Arrowhead Stadium and Kauffman Stadium.

NAPCOR offered technical assistance and presented case studies of recycling efforts in public event venues around the country. County officials strongly supported this opportunity for the Complex, which is owned and operated by the county. A public-private coalition including Bridging the Gap - the KC-area non-profit responsible for years of public recycling collection, education and advocacy - joined the team.



A grant from Mo.DNR started the project with a comprehensive audit of waste management practices, issues, and options and a pilot "plastic pick" was conducted in the Arrowhead facility during the 2002 season. Co-mingled beverage container collection was implemented in both facilities in 2003, along with cardboard recycling. Funding from Mid-America Regional Council (Region E Solid Waste Management District) for recycling containers was received, and Mo.DNR funds offset the purchase of compactors.

In 2003, full-scale collection was implemented during the Chiefs season. **22 tons** of plastic and aluminum was recovered. The system was so successful, management extended collection through Big 12 Championship games and purchased recycling containers shaped like giant helmets, emblazoned with the Chiefs insignia, for use outside the stadium by tailgaters. The Chiefs donate to charity all proceeds from aluminum recovered on the grounds and at concession stands.

MARC awarded grants of \$6,000 per team in 2004 to cover costs of contracted recycling services, which the Royals matched with \$2,700. More than **1,048 tons** of recyclables are collected annually, and as of December 2006, **200 tons** have been recycled since the programs inception in 2003. By early 2007, Jackson County was able to turn all recycling responsibilities over to the Chiefs and Royals.

Location: Jackson County

Date Implemented: 2001

Time Required to Implement: Phased in over 6 years

Start-Up Costs: No cost to the County

Staff Required: County employee volunteers

Agencies Involved: MORA, NAPCOR (National Association for PET Container Resources), Bridging the Gap, Mo.DNR (funding), SWMD-Region E (funding)

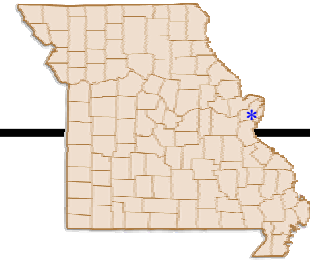
Contact Info: Stephanie Hain
816 920-4382

Diversion of up to **900 tons** annually is predicted when Kansas City Wizards, college soccer, and college football games are included, along with concerts and other non-sporting events. Plans are in the works for a large marketing campaign to target tailgaters and season ticket holders and to require all vendors to use only PET cups. Economic results of this program will be a **\$90,000** savings annually on waste hauling.

Benefits

- **\$90,000** savings annually on waste hauling
- **900 tons** recycled annually
- Increased employee and office recycling within the Chief's and Royals organizations
- Proceeds from aluminum recycling donated to charity

Haz-Waste, Inc.: Waste Management



Multiple Commodities

Project Summary

Haz-Waste, Inc., /HWI Technologies (HWI) headquartered in St. Louis, MO, began its operations in 1993 primarily assisting commercial generators of hazardous waste. The addition of experienced personnel with a variety of environmental backgrounds coupled with a superior commitment to providing a high standard of environmental programs has resulted in HWI becoming an industry leader.



HWI is a full service environmental firm that partners with commercial and industrial firms to manage their waste program. The primary goal of each program is to create opportunities to reduce, reuse or recycle so industrial by-products are no longer part of the waste stream. To achieve these goals HWI continuously explores various opportunities that provide higher end use values for these by-products. In doing this HWI provides research to determine if cross over applications of materials between industries, as well as new technologies to handle or treat materials, provide potential solutions. In creating an atmosphere for synergy between clients and associates, opportunities that may not otherwise be explored are generated and nurtured.

HWI used these resources to initiate a program at Sigma-Aldrich Corporation. Sigma-Aldrich Corporation is a manufacturer and distributor of biochemical and organic chemical products. HWI received a grant with Missouri Department of Natural Resources to help Sigma-Aldrich with their recycling. This partnership enabled Sigma Aldrich to incorporate a very successful pollution prevention program including steel drum, fiber drum, computers, cardboard, paper, glass, plastic, pallets, metal, waste water and expired product recycling. HWI worked with Sigma-Aldrich to match materials that would normally go to landfill to a "home" or reuse for these materials. Through a grant with St. Louis Jefferson County Solid Waste District, HWI was able to hire interns to expand knowledge aiding in reducing waste streams and increase recycling options. The interns also provided assistance to find recycling markets and further the participation in waste exchange efforts.

During this period, Sigma-Aldrich was demolishing an existing building and this closure involved the removal of the contents of the building. Combining recyclables with Sigma-Aldrich's regular ongoing recyclables and the items in the demolished building, HWI was able to help Sigma-Aldrich earn a 2003 EPA Pollution Prevention Environmental Excellence Award.

Diverted and recycled during the project:

2,400 fiber containers
2,300 steel drums for scrap metal
2 tons miscellaneous metal
217 tons cardboard
156 tons paper
4 tons glass
13 tons plastic
100 tons of computer equipment
7,500 pallets
485,000 gallons of waste water
635 tons of expired product

Location: St. Louis County

Date Implemented: 2000-2006

Time Required to Implement: 6 months

Employees: 36

Involved: Mo.DNR (funding) and St. Louis Jefferson SWMD (funding)

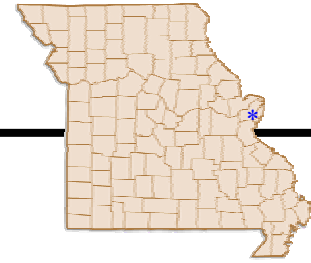
Contact Info:

Peggy Berry—Haz-Waste, Inc.
12951 Gravois Road, Suite 110
St. Louis, MO 63127
800 429-9783
pberry@haz-waste.com

Benefits

- Materials diverted from landfills
- Cost savings
- Pollution prevention
- Jobs created

HEGER: Recycling Equipment



EPS and “Styrofoam™”

Project Summary

Expandable polystyrene foam (EPS), generally a white molded material frequently mislabeled as Styrofoam™, is one of the most common materials used for packaging and thermal insulation.

One of the largest problems with recycling EPS foam is the light weight of the material. A full trailer load of EPS foam weighs approximately 2000 lbs. In many cases, it may be uneconomical to ship back to a foam molder for recycling.

HEGER produces screw compactors that compress the EPS foam parts into dense logs.

Each trailer load of compressed EPS recycled eliminates approximately 20 trailers loads of EPS scrap going to the landfill.

Up to **40,000 lbs** of the compressed EPS logs can be loaded into a trailer, minimizing shipping costs.

The compressed logs can be sold to companies who extrude the material into polystyrene (PS) pellets for use in injection molding applications. The compactors also work well with extruded polystyrene (XPS) such as Dow Styrofoam™. The current market for compressed EPS is in the range of \$300.00 ~ \$500.00 per ton.

The compactors, costing between \$14,000 to \$80,000, are useful to manufacturing companies, product distribution centers, retailers, recyclers, and plastics brokers by allowing more efficient waste reduction and recycling of EPS foam. The compactors are manufactured in Germany and the staff at the St. Louis distributorship are the Missouri center for sales, service, and training.



HEGER Medium Sized Foam Compactor

Location: St. Louis County

Date Implemented: 2003

Employees: 5

Contact Info:

Foam Equipment & Consulting Co.

Phil Plotts – President

314 427-4395

pplotts@foamequipment.com

Doug Malawey – Sales Technician

314 427-4395

dmalawey@foamequipment.com

10725 Indian Head Industrial Blvd.

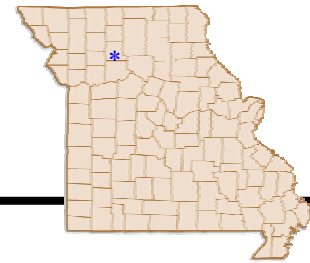
St. Louis MO 63132-1101

Benefits

- Reduces costs for waste hauling and dumping
- EPS can be compressed to less than 5% of its original volume.
- No heat, chemicals, or hydraulics used in the process
- Over **40,000 lbs** of EPS per trailer load when compacted

Hope Haven Industries, Inc.:

Sheltered Workshop Processing



Multiple Commodities

Project Summary

Hope Haven Industries, Inc. provides sheltered employment to adults with developmental disabilities. There are currently 48 employees that work in the recycling center, subcontracting center, and pallet shop.

The recycling center processes around **520,000 pounds** of material every month. With the aid of Hope Haven Industries, Chillicothe became the first city in Missouri to implement a city wide, curbside recycling program. Hope Haven Industries continues to be the largest employer for persons with disabilities in the area and has become one of the largest recycling processing plants in the state. Of the 93 workshops in Missouri, Hope Haven is ranked #4 in pay for the employees.



The employees enjoy their jobs and take great pride in doing a good job. They sort the recyclables by hand one piece at a time. Hope Haven is pleased to serve the area by providing employment and a safe working environment for adults with developmental disabilities and processing recyclables.

The Hope Haven Recycling Center would not be successful if it weren't for the support of Missouri Department of Natural Resources, North Missouri Solid Waste Management District – District B, United States Department of Agriculture, Livingston County New Horizons, Families and Friends of the Developmentally Disabled, and other local foundations.

The subcontracting department of Hope Haven Industries processes small parts, bales textiles, handles document destruction, labeling, small part kits, and several other jobs. The pallet shop manufactures and repairs new and used pallets. The pallet shop produces around **10,000 pallets** monthly.

Hope Haven is proud to have served the area with high quality service, workmanship for our customers, and a quality atmosphere for our employees for 40 years!

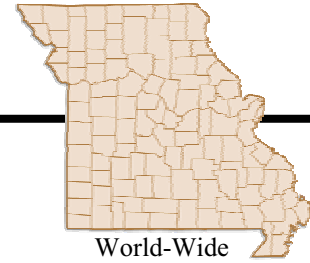
Location: Livingston County
Date Implemented: 1973
Employees: 48
Involved: Mo. DNR, North Missouri SWMD - Region B, United States Department of Agriculture, Livingston County New Horizons, Families and Friends of the Developmentally Disabled and other local foundations
Contact Info: Carol Hobbs, Recycle Manager
carole@hopehavenindustries.org
660 646-0028
Molly Marshall, Workshop Manager
molly@hopehavenindustries.org
660 646-5172

Benefits

- **520,000 pounds** of material recycled monthly
- Diverts recyclables from landfill
- Collaboration between cities, counties, and a nonprofit
- Provides processing of materials to surrounding area
- Creates jobs for people with developmental disabilities
- Cleaner environment

HTR-Group: Zero Waste

Multiple Commodities, including e-scrap



Project Summary

HTR-GROUP constructed a new state of the art facility at Lake Ozark in 2001. It is the largest and most modern lamp processing facility in the United States and covers 4 acres, with almost 30,000 sq ft under roof. The facility holds two LSS1 lamp processing machines and an in-house thermal retort machine for mercury recovery. HTR-GROUP has a Certified Resource Recovery permit and a RCRA Part B permit from Mo. DNR.

HTR-GROUP recycles all types of Universal Waste including all Lamps, Ballast, Batteries and e-scrap with 100% of materials recycled and nothing landfilled. The company has a zero waste policy and does not even have a dumpster on its property.

With the financial assistance from several grants from both Mo. DNR and Solid Waste Districts, HTR has grown from processing 30,000 lamps



a month to over 1.5 million a month and diverting more than **500 tons** a month from landfills. HTR services more than 10,000 customers worldwide including retailers, institutions, government agencies and Fortune 500 companies with the best logistics team in the industry, dedicated to customer service not available from our competition.

With the highest credentials in the industry, including \$5,000,000 in pollution liability insurance, HTR has enjoyed 8 years of double digit growth, and a bright future considering the enormous growth in Universal Waste and compact fluorescent lamp use.

Location: Miller County

Date Implemented: 2001

Involved: St. Louis-Jefferson SWMD (funding) and Mo. DNR (funding)

Contact Info: Ray Kohout, Chief Operating Officer

P.O. Box 185

Lake Ozark, MO 65049

Phone 888-537-4874

Fax 573 302-7579

rbkohout@htr-group.com

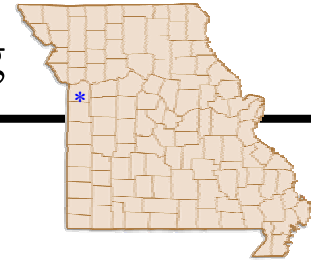
www.htr-group.com

Benefits

- Creates jobs
- Diverts **500 tons** of hazardous waste a month from landfills
- Has achieved zero waste

Jackson County: County Wide Recycling

Multiple Commodities



Project Summary

Jackson County commissioned a waste audit of its nine largest buildings in 1995. From that study, it developed a Director-level committee and an employee volunteer committee, with representatives from every department on each committee. After much research and an understanding of the need, Jackson County's recycling program was inaugurated in 1996 at the County Courthouse, involving 750 employees. A paid staff coordinator was initially assigned to lead the recycling program for all county facilities, working in partnership with the volunteer committee departmental representatives.

An early success involved installation of a trash compactor at the Detention Center, where trash hauling costs in 1995 were about \$50,000. Compacting trash reduced collection services from seven to three "pulls" per week. By the end of 2005, hauling needs further decreased to one pull every three weeks resulting in hauling charges reduced by over 90% in 10 years. The \$13,000 compactor paid for itself in just 15 months, after which trash disposal savings continued to reduce the demand on county funds.

Jackson County's recycling program benefits from regular public promotions, including sponsoring floats in local parades with children who are recycling leaders in their schools riding along, signage referencing numbers of trees saved by recycling waste paper and taxpayer dollars saved by recycling overall. This outreach additionally educates the public about the importance of recycling and promotes good recycling practices.

Recycling is currently practiced in all 33 Jackson County buildings. A daily average of one ton of office paper is recovered through these efforts. Employees handle recycling of aluminum cans in individual buildings. Plastic bottles and other containers are recycled through a co-op agreement with Union Station. County staff transports plastic containers to Union Station where they are baled for top-dollar brokering to regional recycling handlers.

Toner cartridge recycling helps keep purchasing costs down while reducing waste and demand for natural resources. A single branch of County government can save \$16,000 a year by buying cartridges recharged or re-manufactured from those that are recycled.

Jackson County's Resource Conservation Program includes energy efficiency, water saving measures, recycling and has been recognized with a variety of awards, including Bridging the Gap's Environmental Excellence Award. Additional acknowledgment has been received from MARC (The Mid-America Regional Council), along with the U. S. EPA's Region VII recognition of Jackson County in 2002, as EPA's Waste Wise Local Government Partner of the Year.

Location: Jackson County

Date Implemented: 1995

Time Required to Implement: Phased over 3 Years

Start-Up Costs: Some initial costs to the County

Staff Required: County Employee
Volunteers

Involved: MORA (Missouri Recycling Association, NAPCoR (National Association for PET Container Resources), Bridging the Gap, Missouri Department of Natural Resources, Region E Solid Waste Management District

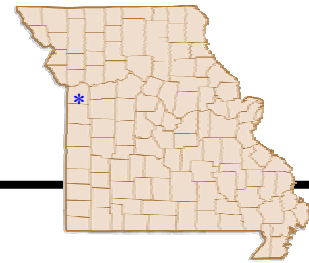
Contact Info: Marilyn Scothorne
816 881-3256

Benefits

- Huge savings as a result of compacting trash
- Community involvement
- **One ton** of office paper is recovered for recycling daily
- Toner cartridge recycling helps keep purchasing costs down while reducing waste
- Since 1995, employees have saved over **70,000 trees**, enough water to fill Arrowhead Stadium, and more than **\$700,000** taxpayer dollars

Jackson County Detention Center: Agency Wide Recycling

Multiple Commodities



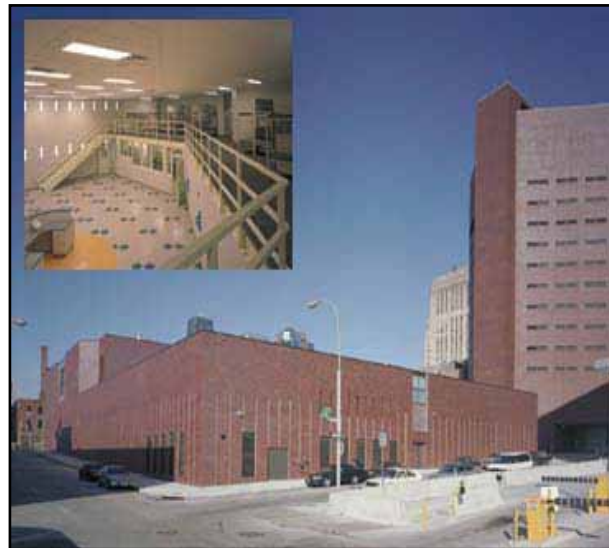
Project Summary

The Jackson Detention Center, in Kansas City Missouri, houses an average of 765 inmates, generating large amounts of waste, more than 500 tons annually, according to a 2001 Tellus Institute waste audit. So, when the Detention Center was challenged to recycle at least 40% of its waste, it didn't panic. In fact, the center faced that challenge head-on.

The center was already doing the obvious recycling of paper waste, which has been ongoing in the County since 1996, so it took some creativity to reach that 40% goal. This was started by making small changes to their daily operations.

One of the first things to happen was issuing inmates reusable cups, which eliminated the use of over 1 million Styrofoam cups a year. Then staff started looking into other areas where waste could be recycled, and was surprised at how many recyclable items were used every day—like grease, toner cartridges, and even inmate shoes (5 tons of shoes are currently recycled each year!).

In late 2005, an organic recycling program was started, in which all food waste and paper products from the food trays were collected for composting. An estimated 84.5 tons of compost will be diverted each year.



Benefits

- Reduced waste hauling fees by **93%**
- Over **\$150,000** saved in waste hauling costs over 9 years
- Over **170 tons** of waste diverted each year
- 260 trash pulls a year reduced to only 17.3 pulls a year!
- Over **40,000 lbs** of paper recycled
- **2,000 lbs** of plastic recycled
- **53,000 lbs** of cardboard recycled
- **1,600 lbs** of electronics recycled
- **44,000 lbs** of grease recycled
- **20,000 lbs** of pallets re-used/sold
- **700 lbs** of toner cartridges re-used
- **18,000 lbs** of tin recycled
- **10,000 lbs** of shoes recycled into Nike Grind

Location: Jackson County

Date Implemented: 2002-2005

Time Required to Implement: Phased over 3 Years

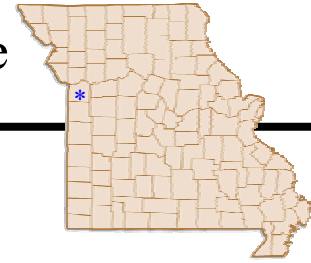
Start-Up Costs: \$15,000

Staff Required: 1 Full Time Employee

Involved: Private Hauling, Consultant

Contact Info: Laura Scott
Jackson County Manager of Jail Services
816 881-4232

Kansas City Habitat Re-Store: C & D Reuse



Building supplies

Project Summary

The mission of Habitat ReStore is to support the construction of houses by Kansas City- Habitat for Humanity through the collection and sale of surplus and salvaged building materials diverted from the waste stream, keeping them out of landfills and in circulation where they can benefit the community.

The ReStore receives residential building materials from individuals, remodelers, distributors, and retail operations. Donors receive a tax deduction for their contribution and avoid the cost of hauling materials to the landfill. Habitat has also created an income generating program called Deconstruction Services, which hand dismantles residential structures for a fee, salvages as much material as possible, and sells it at the ReStore.



In 2006, ReStore sales provided funding for 1 ½ houses, and in 2007, funding for 3 ½ houses is expected. All the materials, both new and used in the 33,000 square foot warehouse, were headed to the landfill so over **6,257.1 tons** of material (as of January 2007) has been diverted from the waste stream gone back out neighborhoods for home improvements.

ReStore has received recognition from environmental organizations (MORA, Bridging The Gap), local and state government agencies (City of KCMO, MARC, Mo.DNR), and the federal EPA-Region VII. The Volunteer Coordinator was named Volunteer Coordinator of the Year in 2003, and the Director was presented the Individual- Choose Environmental Excellence Award in 2004.

Habitat ReStore is a great example of what collaboration within the community can do! The environmental community provided the research to determine feasibility and develop the business plan. MARC SWMD and Mo.DNR have been funders and helped the ReStore grow. The private sector have

been contributors to help get the deconstruction program started. KCMO has been a major partner in providing space at reasonable costs as well as promotion whenever possible. And the people and businesses of the metro area have donated materials, volunteered, and been customers.

Location: Jackson County

Date Implemented: June 13, 2000

Time Required to Implement: 3 months

Start-Up Costs: \$45,000

Staff Required: Start up: 2; current: 13 in store, 14 on deconstruction crew

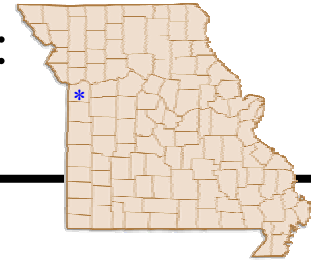
Involved: Mid-America Regional Council SWMD-E and Mo.DNR (funding-\$650,000 for start-up, equipment, renovation, personnel, advertising, and expansion), the Hallmark Foundation, State Street Bank, the City of Kansas City Missouri

Contact Info: Donald E. Reck, Director
Habitat ReStore KC
4701 Deramus
Kansas City, MO 64120
816 231-6889 x 223
donreck@restorekc.org

Benefits

- Salvages **70%** of a house during deconstruction
- Projected to provide funds equivalent to building **3 1/2 houses** to Habitat for Humanity
- The community and non-profit organizations benefit from the discounts offered by the Re-Store
- Diverted over **7,655 tons** of material from landfills (as of April 2007)
- Uses volunteers
- Provides jobs

K. C. Regional By-Product Synergy Initiative: Industrial Ecology



Industrial By-Products

Project Summary

The Kansas City BPS Initiative project applies the principles of industrial ecology in a facilitated process in which individual companies work together as a cross-industry team focused on turning every by-product into valuable new products.

This collaborative, business-driven approach enlists industry to address waste and pollution issues. The synergies uncovered are expected to produce added revenues and cost savings, new



Rain garden at Hallmark Cards Headquarters that receives composted food wastes under one of BPS' synergies.

business opportunities, and environmental and regulatory benefits to the group and to the region. In return, regulators continue to show a willingness to explore ways of permitting reuse options shown to produce higher environmental protection.

The Mid-America Regional Council SWMD sponsored a team of consultants to determine the feasibility of a regional by-product synergy project. Bridging the Gap's Environmental Excellence Business Network led the effort to recruit 11 diverse companies as fee-paying participants and secured public financial support from USEPA Region 7, EIERA and MARC SWMD. The initiative brought neighboring industrial companies and organizations together to discover innovative ways to integrate operations to cut pollution, reduce material costs, and improve internal processes. Fifty previously identified synergies are being evaluated for possible implementation.

Location: Jackson County

Date Implemented: July 20, 2004

Time Required to Implement: 1 year +

Start-Up Costs: \$15,000

Staff Required: Various. Besides the Bridging the Gap Project Manager, participating businesses commit to staff time for project implementation.

Involved: Mid-America Regional Council Solid Waste Management District (funding) EIERA (funding) U.S. EPA-Region 7 (funding), 12 business charter members (fee-paying)

Contact Info:

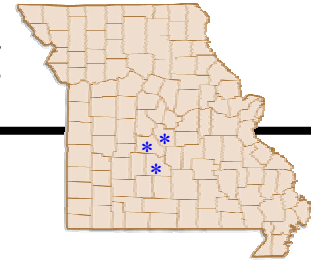
Otavio Silva, Project Coordinator
Bridging the Gap
816 561-1087 ext 111
otavio@bridgingthegap.org
<http://www.bridgingthegap.org/PROGRAMS/business/atworkBPS.htm>

Benefits

- cost avoidance for participating businesses
- creation of new income streams for participating businesses
- environmental and public health risk mitigation
- revitalized internal thinking for participating businesses
- improved public relations for participating businesses
- diversion of waste from landfills

Laclede Industries: Glass Crushing

Glass



Project Summary

Environment Improvement and Energy Resources Authority granted Laclede Industries \$49,287 to purchase a glass crusher and collection equipment to provide glass crushing services for citizens in Laclede, Camden, and Miller Counties. Since its purchase, Laclede Industries has collected over **20,000 lbs** of glass at their drop off site located in Lebanon, MO.

After collection, the glass is crushed into two sizes. The smallest size is the equivalent of sand and the larger size is approximately 3/8". The crushed glass is safe to handle and will not cut. The glass is stored on site until a truck load is collected and then shipped to Willard Quarries. Willard Quarries markets the glass to local companies for use in concrete for construction projects. It provides color and sparkle and when mixed in the proper proportion, strength and durability remain unhindered. The City of Lebanon will utilize the sand size glass as an aggregate when laying pipe.

Laclede Industries also sells the glass in bags to the public for use in home projects. It can be in place of mulch, sand, marbles, rocks, or shells when landscaping.

Many material recycling processors do not accept glass due to the high cost of transportation, low market value, safety considerations, and the tendency for it to contaminate other materials. Laclede Industries has solved all those problems by developing a market for glass right in their own back yard. A key to the success of the project is the support of the community. Laclede Industries knows it's the right thing to do and the community is willing to help make it work.



Location: Laclede, Camden, and Miller Counties

Date Implemented: 2007

Start-Up Costs: \$49,287

Involved: Willard Quarries, City of Lebanon, Vernon & Son's, and EIERA (funding - \$49,287 for equipment)

Contact Info:

Linda Kimrey, Executive Director
Laclede Industries
941 Utah St.
Lebanon MO 65536
417 588-3241
lkimrey@hotmail.com

Benefits

- creation of new income stream for participating business
- reduced costs to local businesses and City of Lebanon
- reuse made of a problematic material
- diversion of waste from landfill

Loganbill Enterprises Inc.:

Mulching and Composting

Pine slab, wood waste, grass, leaves, paper, food, and manure



Project Summary

Loganbill Enterprises, Inc was born on November 11, 1996. The Loganbill family asked Cargill, who was building several new turkey barns in the area, if they had a need for another shavings supplier. Cargill was interested. The Loganbill's purchased two used shavings mills with a \$10,000 loan, borrowed a neighbor's spreader truck and leased a skid steer loader. They found some pine slab suppliers and they were in business!

The operation took off quickly and was set up on the site of an old family turkey operation. A small tornado had blown down the barn on the property several years earlier and the concrete slab remained. This seemed like a good, low-over-head, place to start.



Business continued to grow and eventually delivery equipment was purchased. In 1999, a horizontal grinder (purchased through an EIERA grant) and colorizer were purchased, and the business began making and coloring mulch.

Both of these areas of the business have had steady increases each year. **Twenty tons** of slab wood is shaved per day and **3,500 tons** is ground annually for mulch. Another purchase made possible by an EIERA grant was a mulch blower. It enables Loganbill to install mulch in hard to reach areas up to 300 feet away. A new building has recently been built to provide needed room and make the operation more efficient.

Location: Moniteau County

Date Implemented: November 11, 1996

Time Required to Implement: 6 months

Start-Up Costs: \$10,000

Staff Required: 8 Full Time Employees and 2 Part Time Employees

Agencies Involved: EIERA (funding-3 grants totaling \$150,000 for equipment) and SWMD-H (funding-\$5,000 for equipment)

Contact Info:

Joni Loganbill

Loganbill Enterprises

37710 Hwy. E

Latham, MO 65050

660-337-8222

rjlognbl@hotmail.com

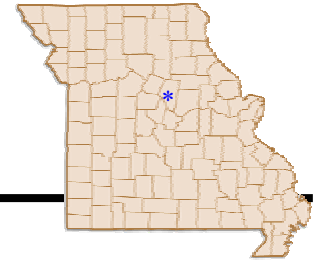
www.loganbillenterprises.com

A third component of the business is compost. Loganbill has a state permitted two-acre compost site for composting wood waste, grass, leaves, paper, food, and manure. There are several feed stocks on site and compost will be available soon. A third EIERA grant was used to buy a compost turner and future plans include blowing out compost for soil erosion control. Loganbill Enterprises, Inc. is proud that all of these waste products are diverted from the landfill and turned into a useful product.

Benefits

- **3,500 tons** of wood waste mulched annually
- Composting food waste and paper
- Waste diverted from landfills

Main Squeeze: Reuse, Composting, and Recycling



Multiple Commodities

Project Summary

Main Squeeze Café is entering its 10th year feeding customers delicious foods that celebrate local farms, a healthy planet, and healthy food choices.

Owner, Leigh Lockhart’s goal was to run an environmentally sustainable business, and Main Squeeze has become a local leader in sustainability since opening in 1997. From the beginning Leigh instituted business practices that promote waste reduction, recycling, and environmental stewardship. These have included composting more than **ten tons** of food waste, recycling every cardboard box, bottle, can, and newspaper that came thru the door, and purchasing compostable “to go” packaging.



Searching for packaging that did as little environmental damage as possible lead her to purchasing NatureWorks® PLA cups, straws, forks, spoons, and “to go” boxes. PLA is made from corn and marketed as compostable. Unfortunately she discovered that the corn used in PLA is bioengineered, and the products took more than a year to completely biodegrade.

Continuing the search, Leigh discovered the Tiffin, a reusable stainless steel “to go” box. Customers can buy the Tiffin and receive 50% off the first meal using their new Tiffin. Regular customers can buy two and leave one at the café; always ready for their next “to go” order.

Leigh uses the restaurant to demonstrate sustainable ideas and educate her customers. The table tops are mosaics made from dishes broken in the restaurant, and the seat cushions on the chairs are crocheted from plastic grocery bags and vintage ties.

As much as possible the food served is from local farms. It is chosen for freshness and quality but also to reduce the CO2 emissions from transporting foods long distances and to support local farmers. Organic food is preferred also, in order to reduce the amount of chemical fertilizers, pesticides and herbicides released into the environment.

Location: Boone County

Date Implemented: 1997

Employees: 25 Part Time and 5 Full Time Employees

Contact Info: Leigh Lockhart
Main Squeeze Café
28 S. 9th St.
Columbia MO 65201
573 817-5616
info@main-squeeze.com
www.mainsqueeze.com

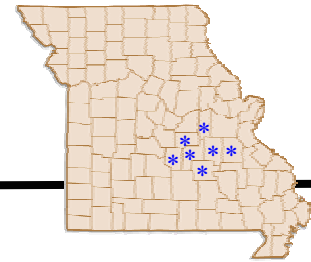
In collaboration with Columbia Couriers, Main Squeeze recently began offering delivery service. Columbia Couriers, a bike delivery service, delivers food orders anywhere within the city limits while reducing global warming.

Benefits

- Community leader in recycling and sustainability
- Buys produce from local farmers
- Recycles all recyclable items
- Composts all food scraps
- Creates jobs

Meramec Regional Planning Commission: Adopt-A-Dump Program

Tires, Metal, and Trash



Project Summary

Illegal dumping is an issue of great concern in the Ozark Rivers Solid Waste Management District (ORSWMD). The region is known for its clear streams, caves and springs, but this karst topography also makes the area's groundwater vulnerable to contamination. Although ORSWMD was concerned about the impact of illegal dumping on water resources, the extent of the problem was unknown.



Goals: To provide water quality protection by educating residents on the environmental impact of illegal dumping and to address illegal dumping through the mobilization of volunteers and partner agencies to cleanup and monitor illegal dumpsites.

The Meramec Regional Planning Commission (MRPC), a voluntary council of local governments, partnered with the ORSWMD to secure a grant through USDA Rural Development to identify illegal dumps. Sixty-nine dumpsites were located, mapped and assessed in the seven-county region. A second USDA grant funded an education and clean-up campaign which included volunteer-driven clean-ups and an adopt-a-dump program where local residents could take responsibility for monitoring dumpsites near their homes.

Initially, the project intended to address three dumpsites. In all, 17 illegal dumpsites were cleaned up with the assistance of 400 volunteers. An estimated **367 tons** of trash were removed for proper disposal, and approximately

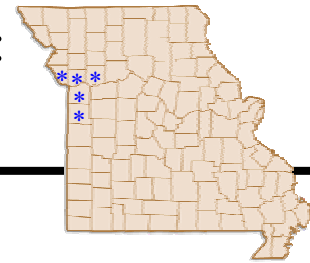
1,280 tires and **34 tons** of metal were recycled between 2003 and 2005. Although the USDA grant has been expended, the ORSWMD continues to provide financial support and technical assistance for additional cleanups by local citizens and organizations.

Location: Gasconade, Maries, Pulaski, Phelps, Dent, Crawford, and Washington Counties
Date Implemented: 2003
Time Required to Implement: One Year (surveying)
Involved: USDA Rural Development (funding-\$106,000 for services, supplies, personnel, travel and advertising), ORSWMD (funding-\$14,000 for same), and 18 other partner agencies
Staff Required: Four staff working part time on project and over 400 volunteers
Contact Information: Tamara Snodgrass
Environmental Programs Manager
Meramec Regional Planning Commission
4 Industrial Drive
St. James, MO 65559
Phone: 573 265-2993
Fax: 573 265-3550
tsnodgrass@meramecregion.org

Benefits

- **34 tons** of appliances and scrap metal recycled
- **1, 280 tires** (13 tons) recycled
- **367 tons** of trash removed
- **17** illegal dumpsites cleaned up
- Involved volunteers

Mid-America Regional Council SWMD-Region E: Multiple Programs



Recycling and Waste Reduction Initiatives

Project Summary

The Mid-America Regional Council (MARC) Solid Waste Management District was formed in 1991 pursuant to the 1990 Missouri Solid Waste Management Law. The district is responsible for regional solid waste planning and programs to divert waste from landfills. Three core services are offered to member communities and their constituents:



District Grant Program

Local governments, businesses, schools, not-for-profit organizations and individuals are eligible to apply for grant funds to implement waste reduction, reuse and recycling projects. Two grant rounds held in 2006 provided **\$717,605** to **34** grant recipients. These grant funds will leverage, at a minimum, an additional **\$179,000** in cash and in-kind match for waste diversion efforts.

Regional Household Hazardous Waste Program

Residents of 34 participating communities have convenient, year-round access to safe disposal of unwanted household chemicals like paint, pesticides and motor oil. Since 1997, over **75,000** vehicles have delivered hazardous materials to two facilities, operated by Kansas City and Lee's summit, and mobile collections organized by the district. Of the nearly **10 million pounds** processed since 1997, about **95 percent** of the material has been recycled, reused or recovered or energy.

Outreach & Education

The district debuted *RecycleSpot.org*, a web-based searchable database of recycling providers in the Kansas City metro area, in 2006. Users search by material or community to view a list of providers and services. The online database supplements the district's recycling information line: 816 474-TEAM. The *Kansas City Environmental Education Network (KCEEN)* connects teachers to environmental education service providers and resources to improve integration of environmental education into school subjects.

The MARC Solid Waste Management District serves the local governments in Cass, Clay, Jackson, Platte and Ray counties, including the city of Kansas City, Mo. The district works cooperatively with local governments located on the Kansas side of the metropolitan area.

Location: Platte, Clay, Ray, Jackson and Cass Counties

Costs: Operating Budget: \$330,000
Plan Implementation: \$95,000
District Grant Projects: \$533,000

Involved: Local governments in Cass, Clay, Jackson, Platte and Ray Counties

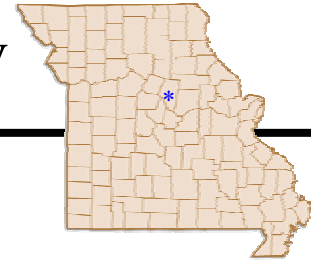
Contact Information:
 MARC Solid Waste Management District
 600 Broadway, Suite 200
 Kansas City, Missouri 64105
 Ph: 816-474-4240 Fax: 816-421-7758
www.marc.org/environment/solidwaste

District Staff:
 Lisa Danbury, District Planner
 Nadja Karpilow, Program Coordinator
 Matt Riggs, Outreach Coordinator

Benefits

- Regional planning and programs tackle common issues across jurisdictional boundaries and enhance state and local efforts
- Financial and technical assistance stimulate collaborative efforts and expand infrastructure and services
- Regional HHW Program diverts **1 million pounds** of unwanted hazardous products from landfills annually.
- Outreach and education grant projects target consumers of all ages and backgrounds
- Grant projects report to date **21,430 tons** diverted

Mid-MO Recycling: Zero Waste Policy



E-Scrap

Project Summary

In 2001, Mid-MO Recycling opened its door and began accepting e-scrap from the mid Missouri area. Already running a mailing service that had made a major commitment to reducing waste, Stan Fredrick, believed he could make electronic recycling work and provide a needed service to the local community.

In the beginning a fee was charged to drop off most components, especially monitors because of the difficulty in finding a market for them. The company made a commitment to zero waste from the beginning and has continued that objective to the present time. Useable products are wholesaled to local businesses and everything else is broken down for recycling. All metals, even the screws, plastics, and all other materials are collected for recycling. Even the cardboard boxes people bring their items in are broken down and recycled.

In July 2006, Mid-MO Recycling began a trial month to study a “no charge” policy. All charges were waived in July and the results were unbelievable. With only minimal advertising and some assistance from the City of Columbia with a press release and notices distributed at their household hazardous waste collection facility the amount of materials received increased dramatically. That month brought in 1,207 monitors, 695 computers, 123 televisions, 576 printers, 74 VCRs and 272 pieces of miscellaneous electronic equipment. A total of approximately **184,000 pounds** in one month was recycled with no cost to any company or individual or with government funding.



Location: Boone County

Date Implemented: July, 2006

Time Required to Implement: 1 month

Project start-up costs: \$0

Staff Required: Two employees, with some seasonal hired help

Involved: City of Columbia

Contact Info:

Stanley Fredrick, President
Mid-MO Recycling
P.O. Box 723
Columbia, Missouri 65205-0723
573 474-8877
recycle@socket.net

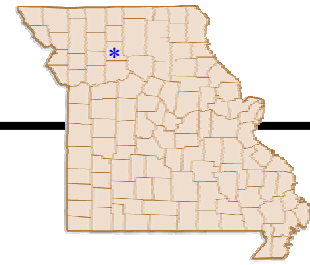
The “no charge” policy was extended to the end of ‘06. Extended again to June of ‘07 and again to the end of the year. With the volatility of the market, especially of plastics, it may be necessary to again charge for some items, but Stan and his employees will continue to work hard to keep the zero waste policy in place.

Benefits

- Increased tonnage diverted from the landfill
- Safe disposal/recycling of hazardous electronic waste
- Needed service provided to the community

Midwest Quality Gloves: Plant Wide Recycling

Multiple Commodities



Project Summary

Midwest Quality Gloves is a glove manufacturing plant located in Chillicothe. They have recently started the project of converting their plant from partial recycling into a comprehensive plant recycling program.

The project began in late October of 2006. Plastics, cardboard, and shrink wrap were collected for recycling. Prior to that, approximately 150 to 175 ninety-gallon containers were sent to the landfill each month. Now, the average number of containers is between 45 to 55 and landfill costs have been reduced by roughly \$750 month.



"We began our project with the thought of becoming more environmentally friendly, but the end result was helping the environment and saving money in landfill fees."

Hope Haven, a sheltered workshop located in Chillicothe, serves disabled adults and is one of the big winners in the project. Hope Haven helped Midwest Gloves set up recycling containers throughout the plant and collects the recyclables at no cost. It's a win-win situation for the environment, Hope Haven, and Midwest Quality Gloves. For their efforts Midwest Quality Gloves received the 2007 Business Recycling Award from MORA.

Location: Livingston County

Date Implemented: October, 2006

Time Required to Implement: 30 days

Staff Required: One staff member at the plant

Involved: Chillicothe Municipal Utilities and Hope Haven Sheltered Workshop

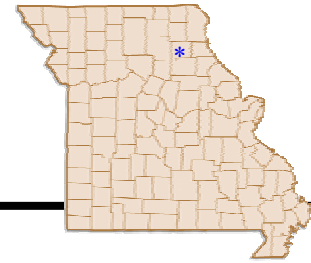
Contact Info: Julee Nibarger
Midwest Quality Glove
835 Industrial Drive
Chillicothe, Missouri 64601
660 646-2165
jnibarger@midwestglove.com

Benefits

- Tremendous reduction in amount of waste diverted from the landfill
- Savings of roughly \$750 a month in landfill fees
- Mutually beneficial relationship between Midwest Gloves and Hope Haven Sheltered Workshop

Missouri Bio-Products, Inc.:

Grease Recycling



Kitchen Grease

Project Summary

Kitchen grease may be one of the last items most people would consider recycling, but it is one of many waste materials that can be converted to bio diesel fuel. "Its a valuable commodity," says Lindell Smith.

Smith is president of Missouri Bio-Products, Inc., located in Bethel. He collects kitchen grease in a trailer truck from restaurants in communities in north-central Missouri. He also



collects waste engine oil from automobile oil change and repair shops and uses it as a fuel source to heat and cool his 2,880 square foot building.

Smith and his five employees place the kitchen grease in large tanks. The grease is exposed to various processes and pumped through a series of screens and filters. The final product is called B-100, a bio-fuel that is sold to commercial blenders who pump it into cars and trucks.

In 2004, Smith received assistance from the EIERA Missouri Market Development Program to purchase equipment needed to make the bio-diesel. The bio-fuel burns much cleaner than gasoline, reducing green house gas emissions. Missouri Bio-Products expects to increase production to **8,000 gallons** a month.

Location: Shelby County

Date Implemented: 2004

Time Required to Implement: 2 years

Start-Up Costs: N/A

Staff Required: N/A

Involved: EIERA

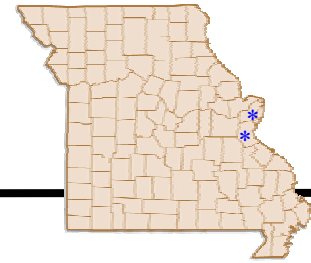
Contact Info: Lindell Smith, President
Missouri Bio-Products, Inc.
7352 Shelby 156
Bethel, MO 63434-2623
660 284-6250

Smith has received numerous calls for B-100 from throughout the state and even from other countries.

Benefits

- Converts a waste product into an alternative fuel
- Creates jobs
- Increased production will bring output to **8,000 gallons** a month

Missouri Botanical Garden: Plastic Recycling



Horticultural Plastics

Project Summary

The Plastic Pot Recycling Program was started in 1998 at the Missouri Botanical Garden to collect and recycle horticultural plastics from the public and industry. 2007 represents the tenth year that the program will stage a collection with this year's goal of **100,000 pounds**. Each year, over 350 million pounds of garden plastic is generated in the US. The plastic pot recycling program has generated considerable national interest and remains a model for other communities.

In ten years of collection, the program has progressed from a four to six weekend collection of 10,000 pounds to over **70,000 pounds**. In addition, eight weekday mornings are set aside for collection from the industry. Initially, containers were delivered in roll-offs to a local recycler for granulation. Presently, all materials are granulated on-site with the assistance of 60 volunteers. Plastic lumber, raised bed kits, and compost bins were subsequently manufactured in St. Louis by the Plastic Lumber Company of America, LLC during the years 2003 – 2006. These goods were sold back to the public to recover part of the cost.



In 2006, the collection sites were expanded to include six garden centers and two municipal recycling facilities. A larger granulator and a conveyor were purchased. Re grind has been marketed for the production of railroad ties. These are being marketed to landscape contractors and architects for construction of retaining walls demonstrating the closed loop in our recycling program.

Location: St. Louis and Jefferson Counties

Date Implemented: 1998

Time Required to Implement: Phased in over 9 years

Start-Up Costs: \$150,000 (granulator, conveyor, electrical, container storage and canopy)

Staff Required: 60 volunteers to unload cars on six weekends, 2 part time paid staff

Involved: St. Louis-Jefferson Solid Waste Management District, MO Environmental Improvement and Energy Resource Authority, MO DNR, Monrovia Growers, Inc.

Contact Info: Steven Cline, Ph.D.
.Missouri Botanical Garden
P.O. Box 299
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314 577-9561

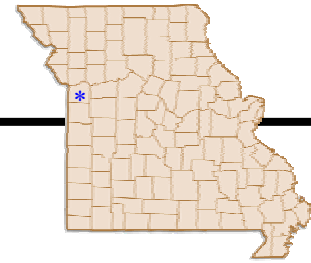
With support from Monrovia Growers, Inc. in Azusa, CA, the program will soon begin testing the suitability of using recycling trailers at garden centers and separating plastic types to more effectively market the regrind and increase revenue.

Benefits

- **600,000 pounds** of polystyrene, polypropylene and polyethylene removed from landfills
- Re grind marketed for the production of lumber and railroad ties
- Demonstrated closed-loop recycling
- Model program for community recycling of horticultural plastics
- Uses volunteers

Missouri Organic Recycling: Composting

Food and Green Waste



Project Summary

The FRED project (Food Residual Environmental Diversion) was started in 2005 by Missouri Organic Recycling with a grant from Mo.DNR. This project was created to divert food waste from the industrial, commercial, and institutional waste streams in the Kansas City area.

Facilities such as Jackson County Detention Center, Hallmark Cards, Whole Foods Market, Delmonte, Mr. Dell Foods, and Cargill Corporation, are current participants. MOR received a grant from the MARC SWMD-Region E to expand this project to include more grocery stores and restaurants in 2007.

The project is currently diverting about **4,000 tons** of food waste per year from landfills. The food waste is mixed with **70,000 cubic yards** of green waste from the Kansas City area to facilitate the composting process. A grant from EI ERA provided funds to purchase a 2800 gallon vacuum truck that collects liquid waste from food processors. The liquid is applied to the compost windrows thereby diverting it from waste water treatment.

Once the waste is composted the final product is marketed under the name Nature Wise Compost. The compost is an excellent soil amendment used to increase organic matter in soil. This in turn helps to increase water-holding capacity, reduce soil erosion, hold more nutrients and create healthier soils. Compost is also used to create soil mixes for rain gardens and green roofs. Returning organic waste to the soil completes the recycling circle.



Location: Jackson County

Date Implemented: 2005

Time Required to Implement: On-going Project

Start-Up Costs: \$125,000

Employees: 2 Full Time Employees in 2005 with at least 1 more expected in 2007

Involved: Mo.DNR (funding-\$125,000 for equipment), MARC SWMD-Region E (funding-\$75,000 for waste audit, equipment and containers), and EI ERA (funding-\$50,000 for equipment)

Contact Info: Kevin Anderson, VP
Missouri Organic Recycling
7700 E. 40 Hwy
Kansas City MO 64129
816 483-0908
Kevin@missouriorganic.com
www.missouriorganic.com

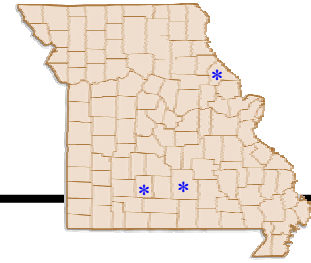
Alan Chappell (consultant to the project)
Environmental Concepts & Designs
417-890-1463
ecd@environmentalconcepts.com

The compost is sold to homeowners, landscapers, and garden centers in and around the Kansas City area. MOR sells about **10,000 cubic yards** of compost and about **30,000 cubic yards** of mulch per year—all made from recycled organic waste.

Benefits

- Over **10,000 tons** of food residual diverted in last 2 years
- Over **6,000 tons** expected in 2007
- Over **100,000 cubic yards** of green waste recycled in last two years
- Compost used in **10** green roof and rain garden projects in Kansas city in 2006
- **15,000 cubic yards** of compost sold in last two years
- Reduced waste fees by as much as **75%**
- **3 to 5 full time jobs** created by end of 2007
- Creates an environmental mindset at the facility serviced
- Helps company or facility meet their own environmental waste objectives

Mo. Department of Corrections: In-Vessel Composting



Food Waste

Project Summary

In FY03, the Department of Corrections (DOC) received two grants from the Department of Natural Resources to purchase an in-vessel composter. The Ozark Correctional Center (OCC) and the South Central Correctional Center (SCCC) each received a \$125,000 grant to compost food waste from cafeteria operations.

The principles of in-vessel composting are the same as those for a backyard compost pile. However, due to the volume and type of materials, in-vessel composting is a much more sophisticated form of composting. Materials to be composted are sealed in vessels where temperature and humidity are controlled to provide the beneficial microbes with ideal conditions to accelerate the composting process.



Three correctional facilities are now using in-vessel composting to reduce their waste: Ozark, South Central, and Northeast. South Central Correctional Center estimates annual savings from the diversion of food waste to be **\$40,000**.

Location: Pike, Webster and Texas Counties

Date Implemented: 2004

Time Required to Implement: 90 days

Start-Up Costs: \$167,000

Staff Required: 6

Involved: Mo.DNR (funding)

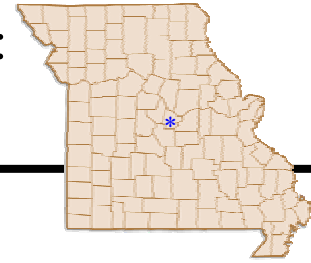
Contact Info:

Rob Didriksen
Coordinator, Missouri State Recycling Program
Office of Administration
PO Box 809
Jefferson City, MO 65102
573 751-3384
Robert.didriksen@oa.mo.gov

Benefits

- Reduces waste fees for State agency
- Converts food waste into useable product
- Diverts waste from the landfill

Mo. Department of Labor and Industrial Relations: Shredding and Recycling



Confidential and Non-confidential Office Paper

Project Summary

The Department of Labor & Industrial Relations' Division of Employment Security (DOLIR/DES) implemented a pilot project in 2005 to determine the feasibility of combining recycling and shredding services.

The expectation was that combining services would be mutually beneficial to the State and the company providing the service. The State would benefit from decreased labor costs, simplified document destruction, and increased convenience for employees. The vendor would benefit from better separation of paper grades (lower labor costs for sorting) and increased volume. It was also believed that larger volume would permit the vendor to lower the price for on-site document destruction and decrease the State's expenses.

Prior to implementation, recycling and shredding were two separate processes. DOLIR/DES employees shredded confidential documents and the recycling contractor collected non-shredded paper and bags of shred. Under the new program employees separated paper into two containers – all white paper (confidential & non-confidential) in one container and all other types of paper (non-white, non-confidential paper) in the other. In two of the eighteen work areas there was also a third container for colored confidential paper.

Location: Cole County

Date Implemented: 2005

Time Required to Implement: 6 month pilot program

Start-Up Costs: \$250 (state cost only)

Staff Required: 1 (to shred)/all employees

Involved: Missouri State Recycling Program and MRS Recycling

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(573) 751-3384

robert.didriksen@oa.mo.gov

www.oa.mo.gov/purch/recypro.html

Why are there so many paper recycling containers in our building?

The extra containers are a result of a pilot project being conducted by the Dept. of Labor, MO State Recycling Program, and MRS Recycling. The purpose of the pilot project is to determine the feasibility of combining recycling & shredding into one service.

Doesn't the pilot project make paper recycling and shredding more complicated?

By combining recycling and shredding services together, all paper waste can be taken to the same location to be recycled or shredded. Employees should benefit from a simpler, more convenient system for recycling and shredding.

Doesn't having more containers make recycling more time consuming?

Although having twice as many containers for recycling paper may seem more complicated and labor-intensive, the pilot project will actually eliminate the need for state employees to shred confidential documents.

Why is non-confidential white paper being shredded along with white confidential documents?

By combining all white paper into the same container, the recycling service is able to spend less time having to sort white paper from other grades of paper.

Look for the Color Coded Signs

WHITE: White Confidential & White Non-Confidential (SHRED)

BLUE: Colored Confidential Documents (SHRED)

NOTE: - There are only 2 locations for colored confidential documents:
1st Floor - Near I.S. 2nd Floor - Benefits Files

YELLOW: All Other Types of Paper

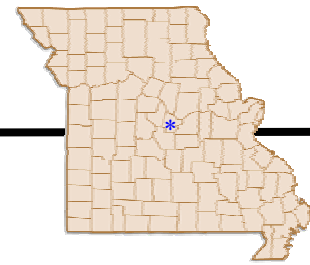
Informational Poster for Pilot Project

The pilot was very successful. Integration of recycling and shredding services into a single service was well received by employees and allowed DOLIR/DES to secure a contract for on-site document destruction for 6-cents per pound. This represents a **40%** discount to the statewide contract rate of 10-cents per pound.

Benefits

- Increases recycling convenience
- Reduces fees for State agency
- Simplifies process
- Decreased labor costs for recycling vendor and state agency
- Integrates two services into one

Mo. DNR: Green Building



Minimization

Project Summary

The Missouri Department of Natural Resources has been promoting resource recovery and environmental impact minimization since its beginning. Several years ago, the department decided that it should go further in practicing what it preached.

In 1998, the department began discussing the possibility of a “green” building, built to specifications that are explicitly designed to minimize the impact on the environment. About 15 Mo.DNR staff members were included in the development of the conceptual design.



Construction officially began in March 2003. Environmental features of the building are specially designed windows to maximize sunlight, a rainwater collection system to aid in flushing the toilets, and concrete composed of 25% fly-ash (a by-product of coal combustion).

The building was completed in March 2005. In May 2006, the Lewis and Clark State Office Building was awarded the highest honor a “green” building can receive. It received Platinum certification for Leadership in Energy and Environmental Design (LEED). At the time, it was one of only 16 platinum buildings in the nation, and the only one in the world that was state-owned.

Currently the building’s energy and resource savings are being evaluated and data collected. What is known so far is that over one million gallons of rainwater, collected from the roof, has been used to flush the toilets, avoiding the use of treated water.

The Department of Natural Resources’ flagship building stands as a shining example of environmental stewardship demonstrating that the department is committed to practicing environmentally sound development and construction.

Benefits

- Daylight minimized electricity required for lighting
- Recycled rainwater from roof for toilets
- Waterless urinals
- Native plants landscaping
- Construction waste recycled
- Demolition waste reused on-site
- Preference given to Missouri or regional recycled construction material
- Sustainable site chosen from Jefferson City’s existing urban core
- Heating and cooling system maximizes use of sun
- Raised floors increase heating and cooling efficiency
- Photovoltaic roof panels minimize energy consumption

Location: Cole County

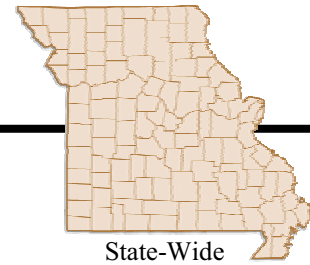
Date Implemented: Planning: 1998-2003,
Construction: 2003-2005

Time Required to Implement: 6 Years

Involved: Berkebile, Nelson, Immenschuh, and McDowell (architectural firm), Professional Contractors and Engineers (construction), and Office of Administration

Contact Info: Dan Walker, General Services Program
Mo.DNR
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dan.walker@dnr.mo.gov

Mo. DNR: Scrap Tire Playground Cover and Surfacing



Scrap Tires

Project Summary

Scrap tires can be tricky to deal with. They cannot be disposed of in a landfill unless they are cut up, which is difficult to do. If left in an illegal tire dump, they become breeding grounds for mosquitoes, could catch fire and release harmful chemicals into the air and surface water, and are a blight on the landscape.



Since the program's inception, 261 projects using over 860,000 tires have been funded.

The logical solution would be to recycle them, but it can be difficult and costly to find end markets for recycled tires. That is one reason the Missouri Department of Natural Resources created the Scrap Tire Playground Cover and Surfacing Grant program. Under the program, public schools, some private schools, parks, non-profit day care centers, other not-for-profit organizations and governmental organizations can obtain financial assistance to use scrap tires to cover playgrounds, running tracks, walking trails or other surfacing projects approved by the department. The grant program not only creates an end market for scrap tires, it also helps to make recreation areas safer for children's activities.

During 2004, the Scrap Tire Fee was allowed to expire. The 50-cent-per-tire fee was renewed in 2005 and the department has recently begun accepting grant applications again.

It is important not to just recycle, but to make sure that there are markets for the recycled materials. In this way, recycling can sustain itself for generations to come.

Location: State-wide

Date Implemented: 1994-2003, 2006-present

Involved: Missouri Department of Natural Resources – Solid Waste Management Program

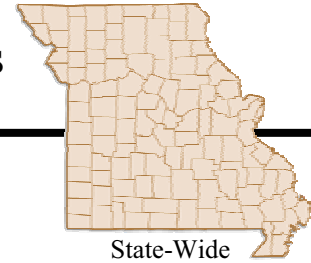
Contact Info:

Dan Fester – Scrap Tire Unit Chief
573 526-3909
dan.fester@dnr.mo.gov
Bruce Tylke – Scrap Tire Planner
573 526-3909
bruce.tylke@dnr.mo.gov

Benefits

- 261 projects funded thus far
- \$1.38 million in funds disbursed
- 863,459 scrap tires reused in the projects
- End market created for scrap tires and a safe play area for kids provided

Mo. DNR: Waste Reduction and Recycling Grants



Funding

Project Summary

When Senate Bill 530 was passed in 1990, the condition of recycling in Missouri was very different from what it is today. The bill set a goal of achieving 40 % diversion of waste from landfills, when at the time, the diversion rate was closer to 12%.

The bill also created the Solid Waste Management Fund. The Missouri Department of Natural Resources would collect a fee on every ton of waste disposed of in Missouri or exported out of Missouri through a transfer station. This fund supported the creation of three types of financial assistance: recycling market development, solid waste management district grants, and waste reduction and recycling grants administered by the department.

A total of **389 projects** were funded during the 13 years the program was active. About **\$24 million** was disbursed to help develop a recycling infrastructure that Missouri could sustain for years to come.



Waste reduction and recycling grants helped drive the increase in waste diversion rate from 12% to a high of 47%.

The passage of Senate Bill 225 in 2005 discontinued the waste reduction and recycling grants program. Recycling grants now come exclusively from Missouri's 20 Solid Waste Management Districts in the form of district project grants. The department is still working to close out the remaining few grants that are still open.

The state of recycling in Missouri has changed. In 1989, only 47 communities had access to recycling services. Now, over 400 communities have access to recycling services. Similarly, yard waste services rose from 112 in 1989 to almost 350 today. Assistance from both state and district grants helped to create these services.

Benefits

- **389** projects funded over a thirteen-year period.
- **\$24 million** in disbursed funds
- Helped to increase waste diversion rate from 12% to a high of 47%
- Diverted **467,000 tons** of waste from landfills, through funded projects, while helping to create a recycling infrastructure in Missouri.

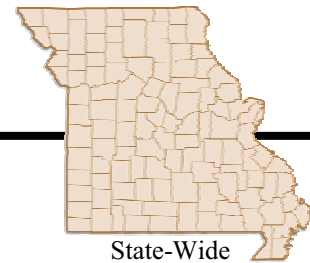
Date Implemented: 1993-2005

Involved: Mo.DNR-Solid Waste Management Program

Contact Info:

Dennis Hansen, Planning Unit Chief
573 526-3921
dennis.hansen@dnr.mo.gov

Mo. DNR: Waste Composition Studies



Research

Project Summary

After the Senate Bill 530 amendments to the Missouri Solid Waste Management Law came into effect in the early 1990s, efforts began to increase recycling and resource recovery in Missouri. However, there was a challenge of what materials to focus on. A material might be easily recyclable, but also a very small part of the waste stream.

The Missouri Department of Natural Resources initiated the Missouri Waste Composition Study with waste reduction and recycling project grant funds. The study, conducted by the Midwest Assistance Program, Inc., took place in two phases, one in 1996 and one in 1997. Both phases focused on the municipal solid waste (MSW) stream. In total, 56 waste sorts were conducted at 11 landfills and eight transfer stations across Missouri.

It was found that the largest parts of the MSW stream were paper products and organic materials (food waste). It was also found that the MSW stream remained fairly consistent from season to season.

A decade later, the department funded a 2006-2007 Waste Composition Study to determine the effectiveness of recycling programs and if other materials need to be focused on more intently. In this way, recycling can be adjusted and changed to maintain its sustainability.

The 2006-2007 study will allow for a comparison to be made with the information collected 10 years earlier and provide information useful in making future recommendations and decisions concerning solid waste and recycling issues.



Location: 11 Landfills and transfer stations throughout Missouri

Date Implemented: 1996-97, 2006-present

Involved: Mo.DNR – Solid Waste Management Program and Midwest Assistance Program, Inc.

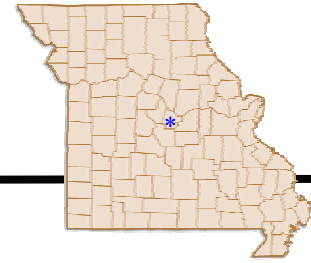
Contact Info:

Dennis Hansen – Planning Unit Chief
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573 526-3921
dennis.hansen@dnr.mo.gov

Benefits

- Creates a “before and after” picture of waste composition in Missouri to determine effectiveness of recycling programs
- Determines which materials are being adequately recovered and which may need more attention
- Can provide needed information for the creation and implementation of future solid waste legislation

Mo. OA Technology Services Division: Recycling Styrofoam™



Expanded Polystyrene

Project Summary

In FY05 the Office of Administration's Information Technology Services Division (OA/ITSD) approached the Missouri State Recycling Program (MSRP) about recycling expanded polystyrene (Styrofoam™). OA/ITSD anticipated a large amount of Styrofoam™ waste from the installation of several hundred new computers. This inquiry led the MSRP to sponsor a pilot project to determine the feasibility of recycling Styrofoam™.

Two hundred sixty nine cubic yards of Styrofoam™ weighing **1200 lbs** was recycled by a company that applies a non-toxic chemical solution to the material. The chemical dissolves the Styrofoam™—creating a solution. It works much like placing an Alka-Seltzer® tablet into water. The solution is then used for various applications such as “cold seal” crack repair on Missouri's highways.

The Styrofoam™ came from the Truman building where there is a 43 cubic yard trash compactor. Since Styrofoam™ does not compact efficiently, the compactor would have been filled 6.26 times. The cost of the building's trash service is based on the number of pick ups, so the cost of throwing away the Styrofoam™ would have been \$2006.08. Recycling cost \$436.60 with resulting savings of **\$1569.48** to the State.



Styrofoam™ Recycling Project Facts

Weight of Styrofoam™ = 1200 lbs
Volume of Styrofoam™ = 269 cubic yards
Size of Trash Compactor = 43 cubic yards
Number of Times Compactor
Would Have Been Filled = 6.26
Avoided Disposal Cost = \$2006.08
Recycling Cost = \$436.60
Savings = \$1569.48

This project did not take into account labor and storage costs which may warrant a follow up cost-benefit analysis that considers these, but Styrofoam™ cannot be compressed easily and can occupy a great deal of space in a trash receptacle. Most trash services charge by pick up, not weight, therefore, recycling Styrofoam™ has the potential to significantly decrease costs.

Location: Cole County

Date Implemented: 2005

Time Required to Implement: 6 months

Start-Up Costs: \$436.48

Staff Required: 2 (1 coordinator and 1 collector)

Involved: Mo. State Recycling Program

Contact Info:

Rob Didriksen

Coordinator, Mo. State Recycling Program

Office of Administration

PO Box 809

Jefferson City MO 65102

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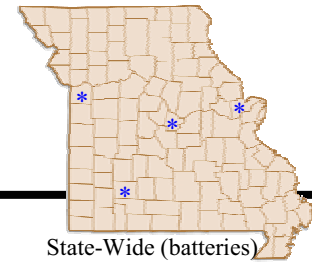
From an environmental standpoint, recycling has value as well. One study indicates it would take over 2000 years for Styrofoam™ to biodegrade. Once in a landfill Styrofoam™ takes up a great deal of space, and can also slow the degradation of other waste by isolating it from dirt and water, necessary for biodegradation to occur.

Benefits

- Reduced waste fees for State agency
- Converted waste into useable product
- Diverted waste from landfill
- Reused by Mo. Dept. of Transportation

Mo. State Recycling Program: Self-Serve Recycling

Rechargeable Batteries and Ink Jet Cartridges



Project Summary

In 2004, the Missouri State Recycling Program arranged with the Rechargeable Battery Recycling Corp. (RBRC) to become the central point for state agencies wanting to recycle rechargeable batteries and lead acid batteries.

From FY04 through FY06, 11,410 lbs of batteries were recycled and the number of agencies registered rose from 42 to 68.

MSRP receives state-wide collection data for all registered agencies from RBRC. This eliminates the need for employees in each department to track collection statistics for the Annual Recycling Report and improves reporting. By working with RBRC to standardize registration, data can now be sorted by agency. Prior to this data was only available as a cumulative number for all State

agencies.

Although no revenue is received from rechargeable battery recycling, the service provides value through its convenience, reporting, and the ease with which it allows State employees to keep toxic materials out of the environment.

To recognize the 2005 Missouri/America Recycles Day, the Missouri State Recycling Program implemented a new self-service recycling program. Two services — rechargeable battery and inkjet cartridge recycling — were combined to create recycling stations where employees are able to conveniently recycle both at the same location.



Boxes for collecting rechargeable batteries sit on top of a small table where employees may deposit these items for recycling. Just below the box are postage paid inkjet cartridge mailers dispensed from a

Location: Blue Springs, Jefferson City, St. Charles, and Springfield (cartridges) and State-wide (batteries)

Date Implemented: 2004 (batteries) and 2005 (cartridges)

Time Required to Implement: 3 months (batteries) and 6 months (cartridges)

Start-Up Costs: \$450 to construct recycling stations

Staff Required: Coordinator for each location

Involved: Rechargeable Battery Recycling Corp., 68 State locations

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www.oa.mo.gov/purch/recypro.html

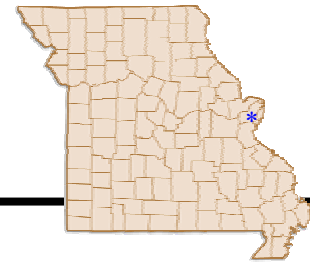
roll. Employees are able to tear off a mailer, drop in the cartridge, seal, and post with the U.S. Mail. The self-service recycling stations are convenient, manageable for recycling staff, space efficient, cost free, and can recycle items from home or work.

At present there are 25 recycling stations distributed throughout 17 State office buildings located in Blue Springs, Jefferson City, St. Charles, and Springfield.

Benefits

- Provides convenient systems for recycling rechargeable batteries, inkjet cartridges, and personal cell phones
- Reduces hazardous materials in landfills
- No-cost services
- Manageable for recycling staff

Neighbors Assisting Neighbors: Community Clean Sweep




Tires, Scrap Metal, and E-Scrap

Project Summary

Neighbors Assisting Neighbors, a non-profit organization, was awarded **\$100,000** under the EPA's Collaborative Problem Solving Program to develop the "Mid-County Community Clean Sweep" project. The project coordinates 9 community clean ups and 1 waterway clean up throughout the Mid County St. Louis communities.

Community meetings were held in each community to outline the project and community co-coordinators assisted with organizing each event. The inner ring suburbs of St. Louis County have experienced a decline over the past 50 years resulting in a number of closed businesses, vacant lots, and public areas that have become magnets for illegally dumped trash. With the help of

businesses, academic institutions, non-profit organizations, and government entities, waste removal and the recycling of tires, scrap metal, phone books and electronic equipment in vacant lots and alleys, was targeted on problem and private properties, public areas and river beds. The waste is not only unsightly but it also poses a health hazard to community residents.



**Carbon Footprint - benefits of recycling 205,720
lbs of mixed metals**
Climate benefit = 118 cars not driven for one year
Energy reduction benefit = 1,338 barrels of oil

Location: St. Louis County

Date Implemented: 2004

Time Required to Implement: 3 years

Project Costs: \$100,000

Staff Required: Project manager, 380 volunteers and Public Works Departments

Agencies Involved: Americorps VISTA volunteers, AT&T, Community Action Agency of St. Louis County, Earth Ways Center, Great Rivers Greenway, Mid County Partners for Progress, Neighbors Assisting Neighbors, New Heights Recovery, Pagedale At Work youth, River des Peres Watershed Coalition, St. Louis County Dept of Planning & Health Dept, St. Louis Metropolitan Sewer District, The Green Center, Trash Taxi, University of Missouri-St. Louis, University of Missouri Extension, Web Innovations & Technology Services, Inc., and EPA (funding)

Contact Info:

Neighbors Assisting Neighbors
Debbie Kricensky, Project Manager
143 A McDonnell Blvd.
Hazelwood, MO 63042
314 713-0703
dkricensky@charter.net

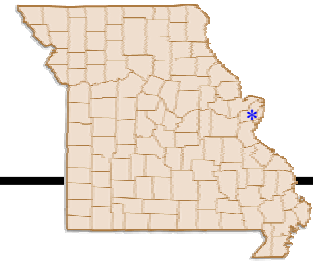
Along with the clean ups, awareness was raised relating to health and environmental hazards as well as encouraging reuse and recycling. Many residents were not aware of how or why to recycle so community recycling fairs were held offering education through fun activities for all ages. A recycled content fashion show and a recycling skit also provided increased awareness about recycling.

Benefits

- **319 tons** of waste collected
- **205,720 lbs** of scrap metal was recycled
- **1634** tires were recycled
- **260** pieces of electronic equipment reused or recycled
- **416** phone books recycled
- To date – 2 communities participating in single stream recycling, 1 community participating in drop off recycling
- Reuse and recycling education offered to residents
- Reduced mosquito breeding
- Involves volunteers

Neighbors Assisting Neighbors: Tire Collection

Scrap Tires



Project Summary

Community leaders and residents in St. Louis County were asking “How can we reduce the number of breeding sites available to mosquitoes?” St. Louis was facing a growing number of cases of a mosquito-borne disease called the West Nile virus.



In 2003, Neighbors Assisting Neighbors, a non-profit organization, was asked to devise a plan to address this problem. The approach to this dilemma was to educate the public on how to prevent the breeding of mosquitoes, remove and dispose of containers that collect and hold water used for mosquito breeding, reduce human exposure to pesticides and mosquito-borne disease, and improve the appearance of neighborhoods.

Through community meetings in 23 communities in St. Louis County and mid-St. Louis County, educational material was distributed to residents. One very popular breeding site for mosquitoes is tires. A tire clean up was conducted in each of the 23 communities and also

Location: St. Louis County and Mid St. Louis County

Date Implemented: 2003

Time Required to Implement: 1 year

Start-Up Costs: \$42,466.00

Staff Required: Utilized 146 volunteers and the Public Works Department's of 14 communities

Involved: Mid-County Partners For Progress, Mo.DNR (funding for education and containers), St. Louis County-Department of Health (funding for brush removal, dumpsters, and recycling services), New Heights Recovery (tire recycling company), local scrap haulers

Contact Info:

Neighbors Assisting Neighbors
Debbie Kricensky, Project Manager
143 A McDonnell Blvd.
Hazelwood, MO 63042
(314) 713-0703
dkricensky@charter.net

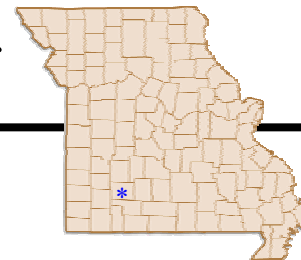
involved local scrap haulers. Residents were educated in the importance of recycling scrap metal such as washers, dryers, metal pools, swing sets, lawn mowers, bicycles, metal cabinets and sheds. Many of these items would collect standing water in residential yards and create a breeding site for mosquitoes.

Benefits

- 29,757 tires recycled
- Approximately 550,000 lbs. of scrap metal recycled
- Reached 25,525 homes in 23 communities
- Reduced mosquito breeding
- Involved volunteers
- Recycling education

Nestlé Purina PetCare: Recycled Paper

Newspaper, junk mail, and other paper



Project Summary

(adapted from an article taken from the Springfield Area Chamber of Commerce Springfield Spirit, Springfield, MO, February 2006)

At a modern production facility in Springfield, Nestlé Purina's crew of 30 takes newspaper, junk mail and other clean papers and recycles them into pet litter and animal bedding. "Each ton of newspaper we recycle saves 3.3 cubic yards of space in the landfill, thereby extending the life of the landfill." In 2006, Nestlé Purina PetCare kept over **12,000 tons** of paper from the landfill.



Nestlé's recycling bins, located across Southwest Missouri, are collection points for teachers, students, businesses, and individuals. The company unloads the bins and begins the manufacturing process. Sawdust is mixed with the paper and the mixture shredded and made into pellets. Packaged as Yesterday's News® brand litters and small animal bedding the products are environmentally friendly and the cat litter is highly recommended by veterinarians for post-surgical care. There is also a litter for dogs, SecondNature® brand.

These efforts are pumping \$3 million into the local economy. "We're truly an economic development project," says Nestlé Recycling coordinator Elizabeth Aull.

The City of Springfield has greatly contributed to the company's success, Aull said. Additional support comes from SWMD-Region O and Mo.DNR. The company's work has also brought it several awards, including one from the Missouri Recycling Association, and Choose Environment Excellence, in 2005 from the Springfield Area Chamber of Commerce.

For three years, Nestlé has teamed with AT&T (formerly SBC) for Project ReDirectory, the recycling of outdated telephone directories. Girl Scouts of Dogwood Trails Council do the collecting and the winning troop receives a pizza party and plant tour.

The company also offers document shredding at no cost to businesses, non-profits, governmental organizations and individuals. Documents must be brought to the plant then the individual can witness the destruction and receive a certificate of destruction.

Location: Greene County

Date Implemented: January 1999

Start-Up: New plant facility and equipment

Employees: Over 30 Full Time Employees

Involved: SWMD-Region O (funding), City of Springfield, Mo.DNR (funding), EIARA (funding-\$50,000 for equipment)

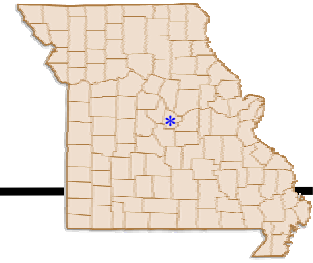
Contact Info: Elizabeth Aull
Recycling Coordinator
Nestle Purina
2555 N. Partnership Blvd.
Springfield MO 65803
417 575-5933
Elizabeth.Aull@purina.nestle.com

The company gives back to the community. Last year, \$5,500 was donated to Springfield-Greene County Library for the purchase of pet-themed books, DVDs and videos. More than \$3000 was donated last year to the Spay and Neuter Assistance Program, and area humane societies receive donations of cat litter.

Benefits

- **12,000 tons** of paper diverted from landfills in 2006
- Creates jobs
- An environmentally friendly litter choice for pet owners
- **\$5,500** worth of pet-themed items donated to the Springfield-Green County Library
- **\$3000** donated to the Spay and Neuter Assistance Program
- Area humane societies receive donated cat litter

New World Recycling: For-Profit Collection and Drop-Off



Fiber and Containers

Project Summary

New World Recycling is a for-profit recycling business, started in 1997, providing commercial and institutional recycling collection and maintaining drop-off facilities. Current contracts cover collection of recyclable materials from residents of Jefferson City, nearby Wardsville, and from the state's Algoa Correctional Center. Employing a staff of eight, New World annually recycles about **500 tons** of fiber and container materials through a daytime drop-off located at the company's headquarters.

New World received a grant from Mid-Missouri SWMD-H to purchase additional collection bins to expand service. The new containers allow drive-through recycling collection at their facility. In the first nine months these bins were in use, New World recycled 134 tons of material. Collection data for 2003, which included tonnage from the new bins, showed a **25%** increase and indicated a probable increase in recycling participation.



Following this success, grant applications were submitted in 2004 to Region H and Mo.DNR and resulted in New World receiving funds to purchase a second baler - capable of handling cardboard, newsprint and other fibers - and two smaller aluminum balers.

In 2006, New World recycled **1,453 tons** of fiber and **226.45 tons** of aluminum.

New World recycling provides convenient, cost-effective recycling services to meet residential and institutional recycling needs in the state capital region.


Location: Cole County

Date Implemented: 1997

Employees: 6 Full Time and 2 Part Time Employees

Involved: Mid-Missouri SWMD-H (funding) and Mo.DNR (funding)

Contact Info: Corey Toeppen
New World Recycling
2007 Idlewood Dr.
Jefferson City, MO 65109
573 635-0331
newworldrecycling@hotmail.com
www.newworldrecycle.com

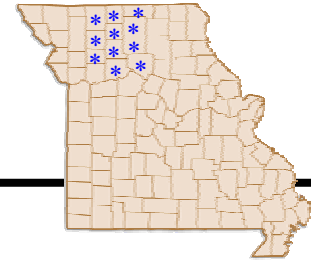


Carbon Footprint - benefits of recycling 226.45 tons of aluminum cans
Climate benefit = 667 cars not driven for one year
Energy reduction benefit = 8,080 barrels of oil

Benefits

- Gives businesses and residents in the state capital region convenient drop-off and drive through recycling opportunities
- Diverts fiber, plastics, steel and aluminum
- Reduces landfill use
- Reduces stored electronic waste
- Creates jobs

North Missouri SWMD-Region B: Collection Programs



Recycling & Waste Reduction Initiatives

Project Summary

North Missouri Solid Waste Management District – Region B was formed in 1992 in conjunction with Senate Bill 530. Region B is the largest district consisting of 11 counties in north central Missouri.

In 2005, Region B received a grant from Mo.DNR to purchase and start a textile recycling program. This has been extremely successful. A trailer is moved through the district on a weekly basis. Textiles that are recycled include clothing, bedding, and shoes. The textiles are taken to Hope Haven Industries in Chillicothe, Missouri or High Hope in Milan, Missouri, for sorting and either sold for reuse or baled for recycling. The district moves the trailer using fees each city pays to participate and the host city pays for the advertising. In the last two years this program has diverted **thirty tons** of textiles from the landfill.



District B also receives grant funds from Mo.DNR each year to collect banned items. This is very beneficial for the environment as a lot of the banned items would be illegally dumped. Items the district helps collect are tires, appliances, scrap metal, household hazardous waste, batteries, and electronics. Collections are held throughout the region yearly. These collections reduce dumping, burning and mosquitoes. Appliance collections accept refrigerators, freezers, washers, dryers, hot water heaters, air conditioners, for a fee of \$5.00 per appliance and scrap metal including lawn mowers, swing sets, bicycles free of charge. The district collects batteries at every collection free of charge. Household hazardous waste collections are done in each county every one to two years. This is a very popular collection, since people want to dispose of these materials properly.

Location: Caldwell, Carroll, Chariton, Daviess, Grundy, Harrison, Linn, Livingston, Mercer, Putnam, and Sullivan Counties

Date Implemented: 1992

Time Required to Implement: 1 years

Start-Up Costs: \$15,000 - \$25,000

Staff Required: One person from NMSWMD and each city or county provides 2-5 persons to assist with unloading of vehicles

Involved: Mo. DNR, Host Cities and Counties, Private Haulers, and Contractors

Contact Info: Ann Hamilton
Solid Waste Planner
1104 Main St.
Trenton MO 64683
660 359-5636 ext 20
ann@ghrpc.org
www.nmswd.org

The district has had two successful electronic collections and will be holding more in future. The district also provides buckets located throughout the region to collect household batteries at no cost.

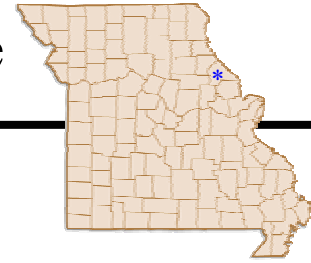
Inkjet cartridge recycling was started in 2003 to reduce more hazardous materials from the landfill. Rolls of postage paid mailers are distributed throughout the region.

Benefits

- Diverts textiles from landfills
- Helps to cut down on illegal dumping
- Gives residents in rural areas a place to dispose of HHW in a proper manner
- Tire collections reduce burning and mosquitoes

Northeast Correctional Center: Reuse

Computers



Project Summary

The Career and Technical Department at Northeast Correctional Center (NECC) in partnership with St. Charles Community College (SCC) and the Department of Elementary and Secondary Education (DESE) have been operating the Missouri Computers for Schools program since November 1998.

Over **750** offenders have been trained in microcomputer repair since the program was started. Currently there are thirty-two students in training and twenty-three workers refurbishing computers.

This program receives donated computers and printers from many places, such as: companies, hospitals, government agencies, and individuals. We insure that ALL hard drives are wiped of data before they are refurbished. The systems are totally cleaned. If something is not working, it is fixed or replaced. An operating system is then loaded on the completed system. All computers are made "classroom ready".

Over **5,600** computers - including monitors, keyboards, & mice - have been distributed to just over **310** public school districts scattered all over the state. The districts apply to DESE and put on a list until computers are available for them. Their only expense is picking them up. Some districts have received computers more than once.

All useable parts are removed from non-working computers and used in others. All monitors that do not work and any unusable components are sent to a recycler within the state for proper disposal.



Location: Pike County

Date Implemented: 1998

Staff Required: One Department Manager, two Microcomputer Repair Instructors, and approximately 23-25 offender workers

Involved: Department of Corrections, St. Charles Community College, Department of Elementary and Secondary Education (funding)

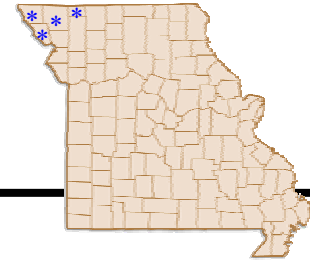
Contact Info: Wanda Lucas, NECC/ Career and Technical Dept.
13698 Airport Road
Bowling Green, MO 63334
573 324-9975 extension 3812
wanda.lucas@doc.mo.gov

The program was established by the Department of Corrections at NECC. All components used to refurbish the systems are purchased with money provided by DESE.

Benefits

- Teaches offenders a marketable skill they can use upon their release from prison
- Provides a place for companies, etc. to donate their outdated computer equipment
- Provides schools with more technology
- Reduces the amount of computer components that might be sent to landfills


Northwest Missouri SWMD-Region A: Tire Collection



Scrap Tires

Project Summary

The Northwest Missouri Regional Solid Waste Management District, in conjunction with participating cities and counties, held the tenth annual district-wide scrap tire collections in Atchison, Holt, Nodaway, and Worth counties. The goal in 2006 was to eliminate approximately 100 tons of auto, semi-truck and tractor tires from the waste stream. The collections exceeded the diversion goal and collected **118 tons** of tires. The District was able to offer the scrap tire collection free to residents of each county through a Region A district grant from the Missouri Department of Natural Resources.



Carbon Footprint - benefits of recycling 118 tons of tires
Climate benefit = 48 cars not driven for one year
Energy reduction benefit = 1,068 barrels of oil

County residents were allowed to dispose of up to 25 car and light truck tires, 10 semi-truck tires, and 5 rear tractor tires free-of-charge. Rims were accepted on car and light truck tires

only. If any resident wanted to bring in more than the established limit, a fee of \$1.00 per car and light truck tire, \$5.00 per semi-truck tire, and \$10.00 per rear tractor tire was assessed.

Location: Atchison, Gentry, Holt, Nodaway, and Worth Counties

Date Implemented: 1996

Time Required to Implement: 4 months preparation each year

Project start-up Costs: \$18,124

Involved: EnTire Recycling, Mickey Parkhurst, Atchison County Commission, Holt County Commission, Nodaway County Commission, Worth County Commission, MO. DNR, Northwest Missouri Solid Waste Management District-Region A (funding-\$18,124.50 for advertising, labor, and hauling)

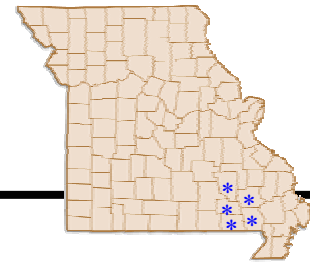
Contact Info:

Amy Stoner
Solid Waste Planner
114 W. 3rd St.
Maryville MO 64468
660 582-5121
amy@nwmorcog.org
www.nwmorcog.org

Benefits

- Has diverted approximately **995 tons** of tires from the waste stream from 2001-2007
- Allowed citizens to get rid of tires legally at little or no cost
- Reduced amount of tires being dumped illegally

Ozark Foothills SWMD-Region Q: Multiple Programs



Recycling Initiatives

Project Summary

Since 1990, the Ozark Foothills Regional Planning Commission (RPC) has been involved in recycling programs. In 1993, the Ozark Foothills Solid Waste Management District was created and became the operator of the Ozark Foothills Region's recycling programs.

The region's recycling programs consist of the collection and processing of recyclables from the five (5) counties and 16 cities in the Ozark Foothills Region. Through the Material Recovery Facility (MRF), the Ozark Foothills Solid Waste Management District operates several programs to assist our counties and communities divert material from landfills.



These programs include curbside recyclables collection in Poplar Bluff and surrounding area in Butler County, recycling trailers with separate sections for aluminum, glass and tin cans, plastic and newspapers located within the 16 cities of the region, an institutional generators program which places 8-yard bins (currently 65 bins are in place) at businesses, hospitals, industries and schools for the collection of recyclables, a tire collection program operating in 23 counties in Southeast Missouri, a newspaper collection program at four (4) community newspaper publishers, an electronics collection program, a white-goods collection program, waste motor and cooking oil collection and a black walnut hulling and collection program. All materials collected are transported to or received at the Ozark Foothills MRF for processing. Within the center, a will-call area is available for residents of the area to deliver recyclables. To assist in the collection and processing of materials, the Ozark Foothills Solid Waste Management District utilizes many pieces of equipment including horizontal and vertical balers, compactor truck, stake-body trucks, boom truck, road tractor, van trailers and an open-top metal trailer.

Benefits

- Has diverted over 1,200 tons of recyclable material annually from landfills
- One hundred percent participation by region's cities and counties
- Increased awareness of recycling through local community participation
- Improved access to recycling
- Reduced collection and processing costs through volume
- Participation, support, and cooperation from public and private institutions
- Sale of recyclables allows leveraging of state grant dollars
- Creates four full-time jobs

Location: Butler, Carter, Reynolds, Ripley and Wayne Counties

Date Implemented: 1990

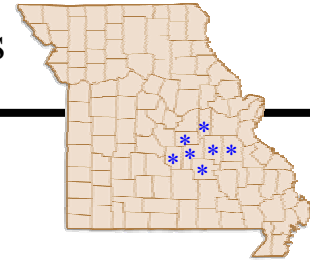
Funding: \$112,779 (FY '06 Mo. DNR funding and \$137,641 (FY '06 SWMD program income)

Involved: Mo. DNR (funding)

Contact Info: Eric Boggs, Recycling Coordinator
573 785-0034
Greg Batson, Executive Director
573 785-6402
greg@ofrpc.org
1625 Rowe Parkway
Poplar Bluff, MO 63901

Ozark Rivers SWMD Region-K: Multiple Programs

Recycling & Waste Reduction Initiatives



Project Summary

The Ozark Rivers Solid Waste Management District was formed in 1991 and includes Crawford, Dent, Gasconade, Maries, Phelps, Pulaski and Washington counties and 20 communities with populations of 500 or more. The region is rural, with a total population of 171,138 and its largest community is Rolla with a population of 17,266.

Rural areas have unique challenges when managing solid waste. Economies of scale can make it difficult to sustain recycling programs. The ORSWMD is fortunate to have several successful local recycling programs that have used district grant funds to improve or expand services. These include the cities of Rolla, St. Robert, St. James, Cuba, Bourbon and Hermann. The City of Rolla's recycling program's longevity can be measured in decades and currently serves as a regional facility that accepts materials from several smaller communities in the region. A total of 11 communities in the region have recycling programs.



ORSWMD 2007 Earth Day Trash Art Contest
Third Grade First Place winning entry

The district funds and implements a number of programs including an educational resource center for schools; Earth Day poster and trash art contests for children K through 12; contracting with professional environmental educators to provide special assemblies at schools; a hot-line number to report illegal dumping; a program to cleanup and monitor illegal dumpsites; a surveillance camera program to catch illegal dumpers; a program to collect and recycle illegally dumped tires; technical assistance for citizens, businesses and local governments; special collections for electronics, waste tires, white goods and household hazardous waste; and most recently, the district has sponsored a program with assistance from the Meramec Regional Planning Commission and U.S. EPA to help schools safely clean out and manage school lab chemicals. MRPC serves as administrator and assists with program implementation.

Location: Crawford, Dent, Gasconade, Maries, Phelps, Pulaski and Washington counties

Date Implemented: 1991

Grants Awarded to Date: 55 (2003-2007)

Involved: Mo.DNR (funding), MRPC (funding), U.S. EPA (funding), and USDA Rural Development (funding)

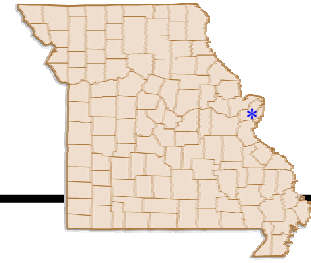
Contact Info:

Tamara Snodgrass, Environmental Programs Manager
Meramec Regional Planning Commission
4 Industrial Drive
St. James, MO 65559
Phone: 573 265-2993
Fax: 573 265-3550
tsnodgrass@meramecregion.org

Benefits

- Assists eleven communities in the region with their recycling programs
- Funds and implements various programs and services for local schools
- Decrease in illegal dumping
- Special collections for area citizens including electronics, tires, white goods and HHW
- Uses volunteers in some programs
- **5,000** tires collected and recycled per year

Parkway School District: District-Wide Recycling



Multiple Commodities

Project Summary

The Parkway School District in West St. Louis County, covers an area of 65 square miles with 33 buildings comprised of 31 different campuses with a district population of 21,500.

Parkway initiated its materials recovery program in 1990 following a presentation made to the Parkway Board of Education by three fifth grade students. The students challenged the district to find an alternative to throwing food-contaminated polystyrene away. The students provided the district with contacts and the methodologies for employees to recover the material. Thus the Parkway Materials Recovery Program was born.

The program is now seventeen years old and has grown, expanded, and evolved. While it is unfortunate that polystyrene is no longer a component of the program, other materials are now included, and the volumes collected continue to grow. The program is also responsible for the collection, handling and processing of all universal and hazardous materials and wastes and involves numerous business partnerships.

The boxed data does not include the volume of recovered rechargeable batteries, ink jet cartridges, fluorescent lamps, ballasts, and other universal and hazardous materials collected. Revenue generated over the seven years has been **\$228,685**. The estimated annual avoided waste hauling costs are **\$36,428** annually (**\$255,000** over the seven year period).

Since 2000/2001 the district has recovered over 10,663 tons of material:
9,509/tons of mixed office paper
881/tons of cardboard
26.63/tons of aluminum cans
213.6/tons of other metals
42.18/tons of #1-7 plastic containers (except #6)
1.45/tons of lead acid batteries.

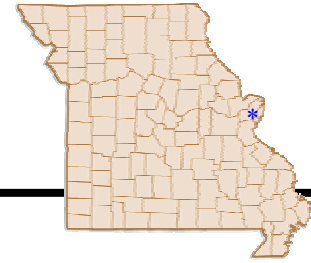
Location: St. Louis County
Date Implemented: 1990
Time Required to Implement: 5 months
Start up costs: \$8,000 incurred over two years
Staff Required: 2 Full Time Employees
Involved: St. Louis-Jefferson SWMD (funding-\$205,000 for equipment), Missouri Botanical Gardens EarthWays Center, Missouri Botanical Gardens Butterfly House, Cash's Scrap Metal and Iron, PSC Metals, Resource Management, QRS Northside, Abitibi Incorporated, Mo.DNR (funding-\$46,000 for equipment), St. Louis County (funding-\$72,4000 for containers, education, promotion), and St. Louis Clean Air Partnership (funding-\$1,000 for biodiesel conversion kit)
Contact Info: Parkway School District Environmental Services Department
 Bill Guinther, Resource Conservation Manager
 363 N. Woods Mill Rd
 Chesterfield, MO 63017
 314 415-8278
 bguinther@pkwy.k12.mo.us



Benefits

- Savings of **\$255,000** in waste hauling costs over seven years
- Since the 2000/2001 school year, **10,663 tons** recycled and diverted from landfills
- Large amount of hazardous material recovered and diverted from landfills
- Student initiated

Peerless Resource Recovery: Recycling Shingles



Roofing Shingles

Project Summary

The Missouri Department of Transportation (MoDOT) and private asphalt mix producers are creating a road paving mixture which uses ground take-off roofing shingles. It has taken ten years of dedicated efforts for Dale Behnen, president of Peerless Resource Recovery, working with State and County regulators, to ensure success for this recycling opportunity.

The biggest hurdles included: fear of asbestos contamination, storage of the ground shingles, removal of deleterious material (mostly wood), finding equipment to grind the material into small enough particles, and garnering the interest of

MoDOT. Concerning asbestos, Behnen eventually met Charles Beaman, Asbestos Compliance Officer from St. Louis County's Air Pollution Control office, a division of the County's Health Department. Beaman immediately saw the value in reusing the shingles and set up a program to detect asbestos. Following guidelines established by the EPA, he determined that no asbestos is likely to be present in shingles removed from one- to four-family residential units, thus presenting no health hazard.

Roger Brown, at that time vice president of Pace Construction Company, had long been a proponent of using recycled materials in asphalt mixes, both to reduce the amount of material entering landfills and to save costs to his company. He and Dale joined together to champion shingle recycling and were able to convince MoDOT to sanction the use of ground shingles in asphalt mixes. Joe Shroer, MoDOT Field Materials Engineer, was a driving force at the agency to see that the project did not lose momentum.

This "green" opportunity is not just good for the environment; the roads being paved with this material are proving to be superior surfaces and the cost savings are significant. By using take-off asphalt shingles, the road construction industry can reduce the amount of virgin petroleum products in hot mixes, reducing costs and the use of a non-renewable resource. In future asphalt mix contractors will find that they must incorporate shingles in their mixes to stay competitive. The market drives the success of this recycling project and no additional regulation will be needed—assuming the industry is



able to store large quantities of the product. With the hard work done, this "roofs to roads" project in Missouri is paving its own road to success.

Location: St. Louis County

Date Implemented: 2007

Time Required to Implement: Seven years

Employees Required: Two Full Time Employees

Involved: Mo.DNR (funding), St. Louis-Jefferson SWMD-Region L (funding), Pace Construction Company, and Mo. Department of Transportation

Contact Info: Dale Behnen

P.O. Box 400

Valley Park MO 63088

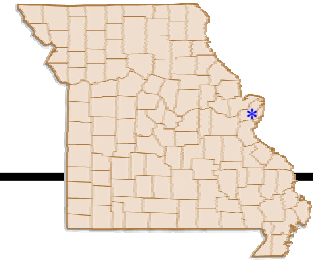
636 225-7000

daleannbehnen@aol.com

Benefits

- Waste material recycled into useable product
- Diverts materials from landfills
- Reduces costs for paving companies
- Reduces use of virgin petroleum, a non-renewable resource
- Creates jobs

Plastic Lumber Company of America, LLC: Recycling HDPE



Post-Consumer, Post-Industrial, and Post-Agricultural Containers

Project Summary

Established in 2005, Plastic Lumber Company of America purchased the assets and business of Environmental Recycling, Inc., a 15-year old plastic extrusion company.

Based in St. Louis City, PLCOA recycles high density polyethylene (HDPE) into plastic lumber for municipal, commercial and industrial applications. During 2006, its first full year of operation, Plastic Lumber Company recycled over **4,000,000 pounds** of plastic into useful, maintenance free, environmentally friendly products.



With the assistance of grants from St. Louis-Jefferson SWMD and EIERA, an additional production line and ancillary equipment has been added, seven new jobs created and the company's customer base expanded. The annual volume of recycled HDPE diverted from landfills is projected to reach **6,000,000 pounds** in 2007. Sources of plastic include post-consumer, post-industrial, and post-agricultural containers. One source is the Missouri Botanical Garden Plants To Pots project.

Along with standard dimensional lumber, Plastic Lumber Company of America also produces custom shapes, sizes, and colors for industrial applications. Landscape timbers for Missouri's municipalities are a specialty and are also sold to the public.

In partnership with such St. Louis-Jefferson SWMD, EIERA, MORA, the Missouri Botanical Garden, Monsanto, Ameren UE, and the City of Clayton, Plastic Lumber Company of America, LLC is committed to discovering and applying solutions to local and global solid waste problems.

Location: St. Louis County

Date Implemented: Spring 2007

Time Required to Implement: 5 months

Start-Up Costs: \$400,000

Employees: 31 Full Time Employees

Involved: St. Louis-Jefferson Solid Waste Management District (funding pending) and EIERA (funding-\$50,000 for equipment)

Contact Info:

Thomas or Brad Urani

8000 Hall Street

St. Louis, MO 63147

Ph: 314-382-7766

Fax: 314-382-7711

thomas.urani@plasticlumberco.com

Brad.urani@plasticlumberco.com

www.plasticlumberco.com

Carbon Footprint - benefits of recycling 3,000 tons of mixed plastics

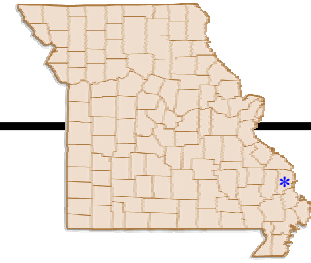
Climate benefit = 995 cars not driven for one year

Energy reduction benefit = 27,384 barrels of oil

Benefits

- **6,000,000 pounds** of plastic diverted annually from landfills
- Environmentally friendly products produced from waste plastic
- Jobs created
- Products made in Missouri from materials generated in Missouri

Proctor & Gamble: Recycling Diaper Dust



Paper Fiber

Project Summary

There is a lot of Luv at this manufacturing plant five miles north of Cape Girardeau.

There is a lot of Luv...and Pampers and other paper products. Each month, thousands of diapers are produced at Proctor & Gamble's 80 acre plant, which is about 100 miles south of St. Louis. The company employs 1,300 workers and its annual payroll of \$89 million makes Proctor & Gamble the largest employer in southeast Missouri.

However, the production of disposable diapers was creating **180 tons** of diaper dust every month, which was being trucked to a local landfill. Every year, disposal costs were about **\$150,000**.



In 2001, Proctor & Gamble received assistance from the EIERA Missouri Market Development Program to purchase equipment to recover the dust.

Each hour, a baler produces a three-foot "square" that weighs 600 pounds. The bales are shipped to companies throughout the Midwest that re-use the paper fibers in their manufacturing operations. One company re-uses the diaper dust in a metal refining process.

Proctor & Gamble also provides company-wide recycling programs that collect office paper and aluminum cans. Recycling diverts about **89%** of all waste at the plant from landfills.

Location: Cape Girardeau County


Date Implemented: 2001

Time Required to implement: 2 years

Involved: EIERA (funding)

Contact Info:

Plant Manager
Proctor & Gamble
P.O. Box 400
Cape Girardeau, MO 63702-0400
573 332-3000



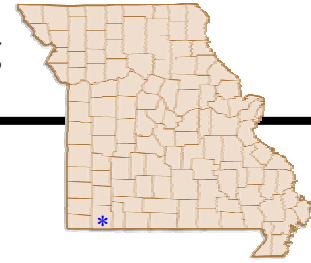
Carbon Footprint - benefits of recycling 180 tons of paper
Climate benefit = 151 cars not driven for one year
Energy reduction benefit = 720 barrels of oil

Benefits

- Diverts **180 tons** of waste each month from Missouri landfills
- Disposal costs of **\$150,000** avoided annually

Purdy R-II School District: School Recycling

Multiple Commodities



Project Summary

The Purdy High School Spanish Club felt a need to find a special mission for the club as well as to provide community service hours for students needing it for scholarship and college applications. The school and community were already saturated with clubs doing fundraising, and the club saw a way to unify the needs for a mission and service hours by beginning a school recycling program. In January 2006, they began to collect office paper, newspapers, magazines, plastic bottles, and cans in the high school. In those first months all but the aluminum was given to the Monett Recycling Center.

By the next school year the club had received a grant for a baler and expanded the operation to the entire K-12 school. They set a goal to recycle 25,000 lbs, and in October, they began to open to the community one Saturday each month. A dependable buyer was located for all materials.



The response has been slow, but steady and enthusiastic. The club is now on track to top **30,000lbs** of materials for the school year with plans to continue the program into the future. A growing number of students are involved and the club is on solid financial footing. The students hope to build a facility for the program with the capacity to handle far more material as community support grows.

Location: Barry County

Date Implemented: 2006-2007

Start up costs: \$13,300

Staff Required: All volunteer

Involved: SWMD-Region N (funding-\$13,3000 for equipment), Greenway Recycling

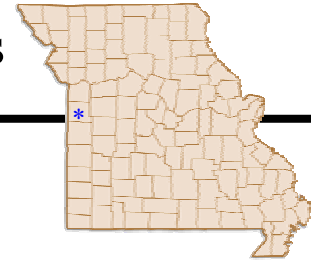
Contact Info: Jerry Lingo, Superintendent
417 442-3215
Joyce Stroud, Solid Waste Coordinator
417 236-9012
swaste@mo-net.com

Benefits

- Recycling program for a community that had none
- No public expenditure for labor
- Intensive involvement of young people in recycling
- Business and economics training for students
- Positive publicity for the school
- A source of dependable income for a school club
- Approximately **30,000 pounds** of material diverted from landfills
- Tremendous potential for growth with education of community
- Involves volunteers

RAMM Enterprises Inc.: Recycling Mattresses

Multiple Commodities



Project Summary

On average, a mattress contains 23 cubic feet of steel, wood, cotton and polyurethane foam, and the average queen size mattress weighs 63 pounds. The EPA estimates that **1,127 million pounds** of bedding and furniture is placed in our landfills each year, which is **20.7** percent of our total waste. Research shows that mattresses and box springs do not compress well, create green house gasses, and damage the equipment used in landfills. By including mattresses in a landfill the lifespan of that landfill is drastically reduced. Annually, **38,200,000** mattresses are discarded in the United States. With a population of 280,000,000, that means that .14 units are discarded per person per year. The average per ton cost to dispose of mattresses in landfills is **\$86.35** per ton. This cost does not include transportation or labor to the disposal company.



RAMM Enterprises is only one of a handful of companies in the United States that recycle mattresses. They are able to recycle **98%** of a mattress/box spring set.

The primary source for old mattresses and box springs are major furniture and bedding retailers in the Kansas City area. These retailers provide a service to the public by picking up used mattresses from the consumer at time of delivery. At present this program is collecting **200** mattresses a day. All mattresses recovered are donated.

Location: Cass County

Date Implemented: February 2007

Time Required to Implement:

Start-Up Costs: \$350,000

Employees: 6 Full time and 2 Part Time

Involved: EIARA (funding) and Missouri Enterprise (funding)

Contact Info:

Ryan A. McMillian
Chief Operating Officer
RAMM Enterprises Inc.
Missouri Mattress Diversion Program
816 288-9888
ramm@casstel.net

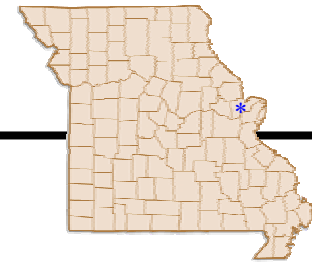
RAMM Enterprises intends to grow this program in the future and accept mattresses from hospitals, hotels, military installations, individuals, universities and municipal drop off points.

The products being recovered are sold to end buyers who recycle them and create new products. Future plans include manufacturing marketable consumer items from the raw materials to further diversify and add value to the company.

Benefits

- Reduces green house gases
- Saves valuable and sizable landfill space
- Reduces wear and repairs on landfill equipment
- Creates jobs

Recycle Works: Drop-Off Centers



Multiple Commodities

Project Summary

Recycle Works drop-off centers are designed to complement curbside recycling by accepting hard-to-handle commodities, as well as provide flexible, more convenient options even for residents already using curbside programs. Since 1990, Recycle Works West in Wentzville has served residents from a four-county radius by diverting over **11,380 tons** of material from regional landfills. This facility accepts used appliances, electronics, clothing, auto fluids and batteries, metal, cardboard, glass, mixed fiber, and most plastic #1-7. RWW is currently undergoing major renovations to better accommodate public usage and a growing population.



Recycle Works Central came online in 2004, for added customer convenience. Since opening, RWC has recycled **460 tons** of material, in addition to collecting **81 tons** of hazardous material. Items accepted include household chemicals, appliances, electronics, clothing, light bulbs, auto fluids and batteries, cardboard, and mixed fiber. Stair-stepping from appointment-based collections only, the chemical collection program now features special walk-in hours and will soon establish a paint swap shop.

Thanks to grants from the St. Louis Jefferson SWMD, both facilities bale or bulk certain commodities to reduce transportation costs and increase revenue. The centers use an estimated **80** community service volunteers, who donate **1,700** hours each year. Recycle Works locations are a part of the e-cycle St. Louis partnership.

Locations: St. Charles County

Date Implemented: 1990

Time Required to Implement: N/A

Start-Up Costs: N/A

Employees: 4 Full Time Employees

Involved: St. Louis-Jefferson SWMD (funding-3 grants totaling \$209,947 for equipment, supplies, building, transportation, and disposal), Mo.DNR (funding-2 grants totaling \$107,365 for equipment), Private Haulers, and e-cycle St. Louis

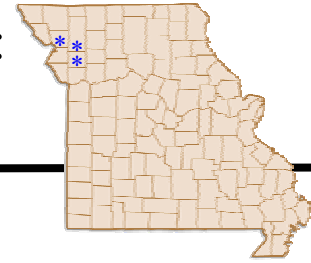
Contact Info: Mike Duvall
Director St. Charles County Division of Environmental Services
636 949-7415
mduvall@scemo.org
www.scchealth.org/es

Employees use a lightning loader for strategic roadside pickups of illegally-dumped waste. Personnel and equipment also provide opportunities for special events, such as the Tire Round-up, River Relief, and Operation Clean Stream, where metal removed from creeks was reused by art students to create Stream Trash ART sculptures for Earth Day.

Benefits

- 13,300 residents served annually
- **11,923 tons** diverted from landfills
- **162,730 lbs** of hazardous chemicals kept out of the environment
- Roughly **\$409,000** revenue generated since 1990
- **\$357,700** saved waste disposal fees for residents (excluding hauling)
- Uses **1,700** hours of community service volunteers annually
- Assisted special events: **4,266** tires collected; **1,000 pounds** of metal removed from Perdue Creek

Recycling and Waste Management District-Region D: Collection Events



Recycling & Waste Reduction Initiatives

Project Summary

Recycling & Waste Management District-Region D consists of the counties of Andrew, Clinton, and DeKalb and 8 member cities. Region D has offered recycling of banned or hard to dispose of materials to the residents of the District since 1996.

Tire recycling is just one of the collections the District has provided. The first tire collection was held in 1996. The collections are one-day events and held in each county. To date a total of **52,822 tires (925 tons)** have been recycled.

The District has also provided Household Hazardous Waste (HHW) collections where agricultural chemicals are also accepted. During HHW collections latex paint is prepared for reuse. The 2007 collection resulted in **240 gallons** of paint being put back into the community for reuse.

E-scrap collections are offered periodically and are increasing in number of items collected. In 2007, **15.8 tons** of electronics were dropped off.

Appliance and metal collections are also part of the services provided by the District and amounts received vary with scrap prices. Collections have ranged from 50 tons to close to 200 tons in a year. 2007 collections brought in **54.38 tons**. Textiles are collected year round in 8 drop-off boxes for the Planet Aid organization. **71,765 lbs.** of textiles were collected in a 6 month period in 2007.

Many of the District programs are the only opportunity for the recycling and proper disposal of banned materials. With secured funding the District wishes to continue to offer recycling services to their residents.



Location: Andrew, Clinton, and DeKalb Counties


Date Implemented: 1996

Time Required to Implement: 1 year

Allocated Funds: \$45,000—50,000 annually

Involved: Mo.DNR (funding), host cities and counties (funding), private haulers and contractors

Contact Info: Brenda Kennedy, Coordinator
Region D Recycling & Waste Management
District
PO Box 139
Clarksdale, MO 64430
816 393-5250
regiond@stjoewireless.net

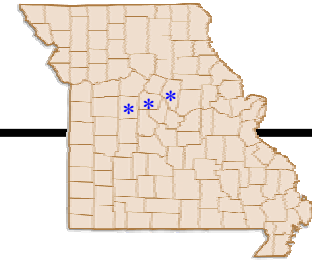


Carbon Footprint - benefits of recycling 117.40 tons of tires
Climate benefit = 47 cars not driven for one year
Energy reduction benefit = 1,062 barrels of oil

Benefits

- Offers recycling of banned or hard to dispose of materials
- **117.4 tons** of tires diverted from landfills in 2007
- Offers safe disposal of agricultural chemicals
- Paint diverted from landfills and reused

Reusables Project: Reusing Scrap



Multiple Commodities

Project Summary

Reusables is an educational recycling program of Educare Boone County located on the University of Missouri Columbia campus at the Center for Family Policy and Research. In five years the program at the Columbia location has grown from a space of 10 square feet to over 800 square feet.

Reusables annually impacts over 22,000 children, approximately 11,000 families, and has diverted over **22 tons** of materials from the waste stream since 2002. The tonnage is especially impressive when considering that it consists of such items as cardboard paper towel tubes, vinyl scrap from sign making shops, and egg cartons. The materials, usually destined for the landfill, are collected from individuals, local businesses, and manufacturing plants. The materials are reused in creative, educational projects by children, families, early childhood programs, schools, and community agencies in Boone and surrounding counties. Funding from MMSWMD-H has been: grant #2007011-\$5,000; grant #2005161-\$3,696; grant #2003122-\$4,600; #2002113-\$4,500. Reusables is a volunteer project, depending on area businesses, individuals, and organizations to keep our collection and distribution streams flowing.



Teachers in the Boone County area take items from Reusables for reuse in their classrooms.

Diversion rate:

2002-03	7,157 lbs
2003-04	8,293 lbs
2004-05	9,000 lbs
2005-06	9,233 lbs
2006-07	10,000 lbs

In 2006, Reusables opened a second site in Boonville, Missouri located at the Unlimited Opportunities Sheltered Workshop. In 2007, Reusables also expanded to a third site at the

Location: Boone, Cooper and Pettis Counties

Date Implemented: 2002

Time Required to Implement: 6 months

Start-Up Costs: \$4,500 through grant funding

Staff Required: 1 Coordinator, several volunteers

Involved: Mid-Missouri Solid Waste Management District H (funding), area businesses, Columbia Public Schools, The University of Missouri Center for Family Policy and Research (in-kind), City of Columbia Public Works Volunteers, Mid-Mo Assistance League (funding), and Central Missouri Association for the Education of Young Children

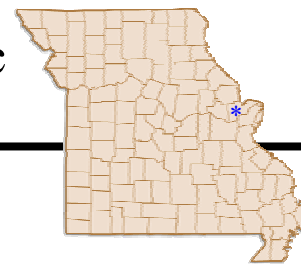
Contact Info: Jo Ann S. Dennings
Reusables Coordinator
Center for Family Policy and Research/Educare BC
1400 Rock Quarry Road
Columbia, Missouri 65211-3280
573 884-1714
FAX: (573) 884-0598
Email: denningsj@missouri.edu

Pettis County Community Partnership, Sedalia, in partnership with Solid Waste District-F. In 2007-08, the Reusables coordinator is writing a curriculum for Early childhood and Primary Classrooms using recycled materials in educational settings. Funding for the printing of this project is underwritten through the Central Missouri Association for the Education of Young Children and Mid-Missouri Solid Waste Management District H.

Benefits

- Annually impacts over 22,000 children and approximately 11,000 families
- Has diverted over **22 tons** of materials from the waste stream since 2002
- Benefits children, families, early childhood programs, schools, and community agencies in the region
- Uses volunteers

Rustique Enterprises, Inc.: Recycling Plastic



PVC Plastic

Project Summary

According to the Manufactured Housing Institute, Washington D.C., 134,937 homes were manufactured in 2003, the last full year of statistics. All of those homes utilize some sort of foundation or foundation cover. Over the last 5 years, homes have gotten larger and more expensive. Up-scale foundation systems are taking a larger share of the overall skirting market. Rustique Enterprises, Inc. has found a recycling niche in this market.



*Rustique Enterprises, Inc.
O'Fallon, MO*



Rustique sells approximately **2000** manufactured home skirting kits a year with an average height of 30 inches. Each kit contains **121 lbs** of recycled plastic material. Multiplied by 2000 kits, **241,920 lbs** of recycled material is included in the kits annually.

Rustique currently utilizes recycled PVC from products such as fencing, windows profiles, siding and extrusion profiles. They accept both white grade A and colored grad B PVC. The PVC is purchased by the truckload (approximately 44,000 lbs per load), from feedstock suppliers including Second Chance Materials, Resource Plastics, and Sunrise Plastics. The annual amount of PVC purchased for the skirting kits and other products is about **6 million lbs**.

The company's goal is to add to the appeal of a manufactured home while using recycled material. Their new style of skirting is comprised of a flat surface panel with a 2" foam back. The face of the skirting panel is made from 90% recycled vinyl. The system used to attach the panels to the home is also made from this material in approximately the same percentages.

Location: St. Charles County

Date Implemented: 2005-2005

Time Required to Implement: 6 Months

Start-Up Costs: \$4,050.00

Employees: 2 Full Time Employees

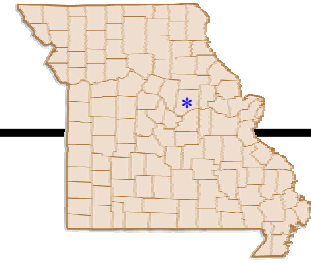
Involved: EIERA (funding-\$2,750 for market study) and Missouri Enterprise (funding-\$48,000)

Contact Info: Dale Knox, Plant Manager
1300 Rustique Sq.
O'Fallon MO 63368
636 498-5525
www.rustique-enterprises.com

Benefits

- Waste material used to produce a marketable product
- The recycled vinyl requires no additional maintenance after installation
- **6 million pounds** of vinyl waste diverted each year
- Jobs created

Ryan Enterprises, Inc.: Recycling Plastic



Waste plastic

Project Summary

"I know the importance of a durable fence post," said Gary Ryan, a farmer for 30 years, who owns a 600-acre cattle and hog farm just west of Fulton. "And farmers don't have time to replace rotting fence posts and they don't have time to paint those posts every two years."

Ryan began Ryan Enterprises, Inc. in 2004, to recycle plastic jugs, and other waste plastic from local businesses into fence posts. He also processes shrink wrap for composite decking material. He received funding from the EIERA Missouri Market Development Program to purchase equipment to begin manufacturing the posts for agricultural use.

The standard five-inch diameter fence post weighs approximately 42 pounds and is eight feet long. "The posts are designed to have five feet above the ground and three feet below," said Ryan. "The fence posts are solid and you can drive a nail or staple into the side with no problems." Ryan added that the plastic posts last much longer than wood posts and can be used for electric fencing also.



Ryan plans to produce **2,000** fence posts a month and to date has diverted **210,000 lbs** of plastic as feed stock. He will market the fence posts to feed and grain stores and agricultural supply companies.

In June 2007, Ryan and Superior Gardens in Columbia organized a used plant pot collection event. The plastic pots were dropped off by the public in a designated area in Superior Gardens' parking lot. The City of Columbia helped with advertising for the event. The pots were hauled to Ryan Enterprises where they were cleaned of dirt, all metal removed, and then processed. The resulting amount of processed plastic was approximately **4,835 lbs**, translating into about **50,000** average size pots. It is estimated that the total number of all pots, which included small pots and starting trays, to be in excess of **400,000**. This was the first collection event in the Columbia area and has great potential to expand, allowing more business and individuals to participate, and become more successful in the future.

Location: Calloway County

Date Implemented: 2004

Time Required to Implement: 2 years

Involved: EIERA (funding-\$47,000), SWMD-H (funding-\$47,000), Mo.DNR (funding-\$100,000), MORA, and City of Columbia

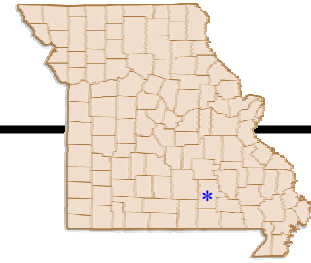
Contact Info:

Gary Ryan, Owner
Ryan Enterprises, Inc.
5596 State Rd. J
Fulton, MO 65251-5203
573 592-0202
gryanenterprises@att.net

Benefits

- Product manufactured from recovered materials and superior in many ways to those made of virgin materials
- Recycling of lower grade plastics, not readily recovered in some markets
- Waste diverted from landfills

Shannon County: Rural Recycling



Multiple Commodities

Project Summary

Some of Missouri's best features are located in Shannon County's Ozark hills. Eminence, the county seat, has been cited by Sports Afield magazine as "the top outdoor sports town in Missouri" and "one of the top 50 sports towns in the country," recognizing the wild and scenic value of the Jacks Fork and Current Rivers, wild horse herds and the nation's largest organized trail rides. Such attractions are vulnerable to trash problems common in rural areas everywhere, from roadside litter, tire-dump fires and insect-breeding health hazards, and illegal dumping in woods and streams. Recycling helps protect our state's Ozark treasures from careless damage, and the preventive strategy of recycling offers a cost-effective safeguard for outdoor resources that are both irreplaceable and challenging to clean up.



Area businesses can subscribe to a weekly collection route for cardboard; their fees help offset collection costs, while diverting cardboard from their trash. This cuts trash collection costs in half for many businesses

Shannon County had no trash pick-up until 1995. Initial recycling collection began in 1997 and consisted of a drop-off trailer in each of the county's cities. Through cooperative efforts by city and county officials and grants obtained from the South Central Solid Waste Management District (SWMD), curbside recycling is now going strong in its fifth year. Collections in this area accept paper, aluminum and steel cans glass and #1 and #2 plastic containers.

Shannon County received a grant in 1997 from Mo.DNR to help purchase a pick-up truck and collection trailer, used to handle trash and recyclables. Drivers handle collection and do about 90% of the sorting needed with recycled materials, which are then sent to the region's Material Recovery Facility (MRF) in Mountain View. SWMD grant awards, matched by county funds, cover salary costs for these services.

Some program revenue is earned from sales of collection bags that standardize service, streamline driver handling of recycled materials, and continually remind residents to use the services correctly. Residents pay \$1.50 per trash bag and fifty cents for each recycling bag, a modest fee that is structured to encourage recycling.

"People here know recycling is a good thing," says County Commissioner Tony Orchard. "Sure there are costs - fuel, labor, bags - but our program is service-oriented. Illegal dumping has been a problem in this area. Recycling and trash collection keeps trash out of ditches and also reduces burning. We're not working to break even yet, but we are looking at possible strategies like cost-sharing between counties."

Location: Shannon County

Involved: Shannon County Commission, Cities of Eminence, Winona, and Birch Tree, Mo.DNR (funding-\$28,000 for equipment)

Contact Info:

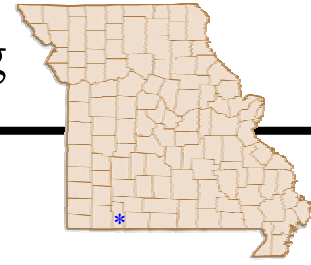
Tony Orchard, County Commissioner
P.O. Box 92
Eminence MO 65466
prescommish@hotmail.com
Shelly McAfee, County Clerk
573 226-3965

Benefits

- Helps cut down on illegal dumping
- Curbside recycling provided for some county residents
- Recycling encouraged by charging a smaller fee for recycling bags than trash bags

Silver Dollar City: Park-Wide Recycling

Multiple Commodities



Project Summary

Silver Dollar City began its recycling program in 1991, through the encouragement of its employees. The park became an environmental pioneer in the area when it began recycling cardboard, glass, paper, and aluminum cans in a pilot program. The initial investment of **\$15,000** for a cardboard baler and collection containers was recovered in less than one year through an incredible **50%** reduction in solid waste disposal fees. The material is handled by Silver Dollar City's ground maintenance team, therefore no additional labor is needed.



Cardboard Recycling at Silver Dollar City

Silver Dollar City's Environmental Project Coordinator, Sue Noel, is a charter member of the SWMD-N Board of Directors. She participated in the development and implementation of the District's plan in concordance with Senate Bill 530. Sue was guest speaker at local schools and organizations from 1992-1994 to help them get recycling programs started and assisted the City of Branson develop what became a very successful recycling center for the community.

Silver Dollar City's environmental program has grown to include waste reduction procedures, composting of yard waste, roadside and lakeshore clean-up, reuse of packaging materials, and the purchase of post-consumer waste paper products. A truck and three collection trailers were needed to handle the recycling materials collected from SDC's local sister parks within the first five years of their environmental commitment. The park's leadership in environmental planning, waste reduction, resource conservation, wildlife habitat management, outreach and education efforts has brought Silver Dollar City with awards and certifications from MODOT, Corp. of Engineers, Associated Recyclers of the Midwest, and Audubon International.

Location: Stone County

Date Implemented: 1991

Start-Up Costs: \$15,000

Time Required to Implement: Pilot Project was planned for 5 years before return on investment

Employees: No additional employees required

Agencies Involved: Greenway Recycling, Computer Recycling Center, Rechargeable Battery Recycling Corporation (RBRC), Commercial Metals, Stone County Recycling, Love INC, Champlin Tire Recycling, Allied Waste

Contact Info:

Sue Noel

Environmental Project Coordinator

417 338-8108

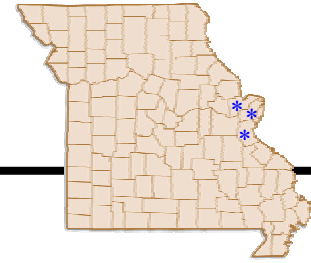
snoel@silverdollarcity.com

Silver Dollar City continues its support and involvement in environmental education and stewardship.

Benefits (1991-April 2007)

- **\$288,000** in solid waste disposal fees saved
- Over **157 tons** of recyclable material diverted from landfills annually
- **2,585,500 lbs** of cardboard recycled
- **1,046,000 lbs** of scrap metal recycled
- Over **13,000 lbs** of aluminum cans recycled
- Over **116,000 lbs** of glass recycled
- **3,500 lbs** of motor oil reclaimed
- **1,272,000 lbs** of mixed paper recycled
- **1,414** tires recycled
- **416** printer cartridges and cell phones recycled
- **10,020 lbs** of e-scrap recycled

St. Louis-Jefferson SWMD-Region L: Supporting Waste Reduction



Recycling & Waste Reduction Initiatives

Project Summary

Since 1993, more than **\$25 million** has been allocated throughout the St. Louis-Jefferson Solid Waste Management District in support of recycling and waste reduction initiatives. This investment not only advances the recycling industry, it expands our economy, protects our environment, and strengthens our communities.

Over the years, the District has awarded **610** grants toward the ongoing accomplishments and growing needs for waste reduction, recycling, composting, education, market development and household hazardous waste management. In 2007, the District awarded nearly \$2,150,000 in Waste Reduction and Recycling Grants to 48 projects throughout the region.

The St. Louis-Jefferson Solid Waste Management District encompasses the City of St. Louis, St. Louis County, Jefferson County, and St. Charles County. Areas within the District vary from highly urban to extremely rural, creating the need for a wide variety of waste reduction and recycling programs to meet local demands. The District assists local governments, private businesses, and non-profit entities in diverting waste from landfills. This combination of public-private partnership leads to greater collaboration and maximizes the effectiveness of grant funds.

District grants leverage millions in additional capital investment to further strengthen the local recycling industry infrastructure.



Location: St. Louis, St. Charles, and Jefferson Counties

Years in Operation: 15 years

Grants Awarded to Date: 610

Total Amount of Awards: \$25 million

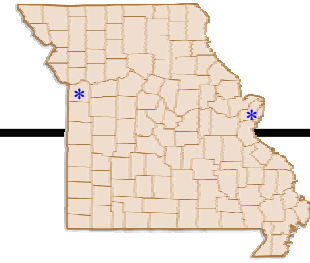
Contact Info:

Dave Berger, Executive Director
St. Louis-Jefferson SWMD
7525 Sussex Ave., St. Louis, MO 63143
Phone 314 645-6753 Fax 314 645-6504
david@swmd.net,
www.swmd.net

Benefits

- The Recycling Industry employs nearly **16,000** workers in the St. Louis Metro Area; generates more than **\$600 million** in payrolls; and nearly **\$90 million** in state and local tax revenues.
- District grants have leveraged more than **\$20 million** in additional investment for local waste reduction efforts.
- Grants used in partnership among the 4 areas address common goals in developing regional programs such as household hazardous waste and electronics recycling.
- Recycling has a positive impact on our environment including saving energy, conserving natural resources, reducing air and water pollution, and reducing greenhouse gas emissions.
- These valuable programs also strengthen community identity and improve the quality of life for local residents.

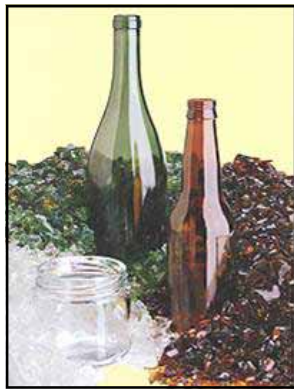
Strategic Materials, Inc.: Recycling Glass



Scrap Glass

Project Summary

Strategic Materials, Inc. is the largest glass recycler in North America with over 30 processing plants and aggregation depots across the United States, Canada and Mexico. Container and plate glass is 100% recyclable and can be melted again and again to produce a new glass product. Glass containers go from recycling bin to store shelf in as little as 30 days!



Recycled glass is commonly referred to as “cullet.” Strategic Materials provides cullet to a diverse customer base including glass container, fiberglass and highway bead manufacturers. Using cullet in place of raw materials during production requires less energy, saves raw materials and reduces greenhouse gas emissions. Because cullet has already undergone the chemical process to make glass, glass manufacturers significantly reduce air emissions.

Strategic Materials collects both post-industrial and post-consumer scrap glass and processes it to meet a wide range of customer requirements from 5/8-inch fragments to very fine powders. The scrap glass comes from a variety of sources including municipal curbside and drop-off collections, breweries, window fabricators, and deposit systems. The St. Louis plant collects, processes and sells **2,000 tons** of cullet a month. There are 2 container manufacturing plants in Missouri. Strategic Materials processes over **1.4 million tons** a year as a company nationwide.

Locations: Processing Facility in St. Louis County and Collection Depot in Kansas City, KS

Date Implemented: 1996 at current location

Time Required to Implement: 1 year

Start-Up Costs: Over \$1 million

Employees: 11 Full Time Employees

Involved: St. Louis-Jefferson SWMD (funding-\$60,000 for equipment) and EIERA (funding-\$50,000)

Contact Info: Dave Schwartz, Plant Manager
Strategic Materials
24 Branch Street
St. Louis, MO 63147
Office: 314-421-2127
dschwartz@strategicmaterials.com
www.strategicmaterials.com

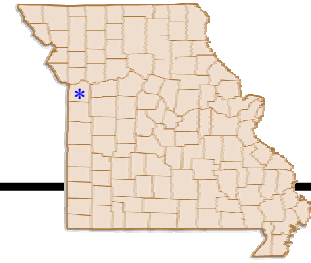
Carbon Footprint - benefits of recycling 2,000 tons of glass

Climate benefit = 137 cars not driven for one year
Energy reduction benefit = 915 barrels of oil

Benefits

- Use of recycled glass saves energy and consumption of raw materials
- Glass recycling is a closed-loop process with no additional waste or by-products created
- For every **six tons** of recycled container glass used, **one ton** of carbon dioxide emissions are reduced
- Recycled glass made into new containers manufactured in Missouri
- **24,000 tons** a year diverted from landfills

Surplus Exchange: Extending the Life of Usable Items



Electronics

Project Summary

The Surplus Exchange is an environmental nonprofit organization serving the Kansas City Metro area. The Surplus Exchange began its operation focusing on diverting business surplus, primarily office furniture and fixtures, from the waste stream and extending the life of usable items. Today the organization has expanded its focus to include electronics with the Electronics Recycling Center.

The Electronic Recycling Center opened in 2003 to provide a safe, responsible way for corporations to dispose of old computers and electronics. The ERC includes end-of-life and reuse programs. Reconditioned computers and electronics are sold to nonprofits, new start up businesses, and the general public at discounted prices.



Electronics are collected by scheduled pick-up, community collection dates, and drop-off at the ERC facility. Items that qualify for reuse are refurbished by technicians and made available through the Tech Shop. Data security services are available. End-of-life items are shipped to a reclaiming center. No

item leaves the U.S. and certificates of destruction are received when the electronics are destroyed. The Surplus Exchange processed 805.1 tons of retired electronics in 2006.

The Surplus Exchange has been expanding the electronics recycling efforts through community collections. Last year six collection events were held around the Kansas City area. The events recovered over **200,000 pounds** of retired electronics. The cost to stage an event was under \$2,000.

The organization worked with one area school district in 2006. Thousands of pounds of retired electronics were diverted from the waste stream, and 100 refurbished computers were returned to the district to distribute to children unable to afford good computers. The Kansas City Missouri School District will join the program in 2007.

Location: Jackson County

Date Implemented: 1984

Employees: 12

Involved: Mo.DNR (funding), Mid-America Regional Council SWMD-Region E (funding), Department of Health and Environment (funding)

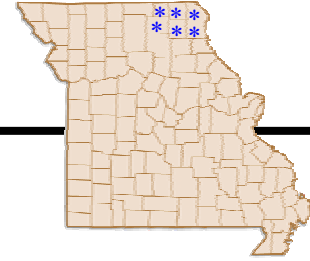
Contact Info: 518 Santa Fe, Kansas City, MO 64105
Rick Goring
816 472-0444
rgoring@SurplusExchange.org

Bob Akers
816 472-0444
BobAkers@SurplusExchange.org

Benefits

- Area school districts are able to use and distribute affordable computers to students
- Old equipment is diverted from the landfill and toxic materials are kept out of the environment
- Area residents have a place to safely dispose of old electronics
- Office furniture and fixtures are diverted from the landfill and reused
- **1,905 tons** of electronics collected between 2004 and 2006
- **12 Jobs** created

SWMD-Region C: Tire Collection



Scrap Tires

Project Summary

Residents of Adair, Clark, Lewis, Knox, Scotland, and Schuyler counties had the opportunity to dispose of old tires in an annual Waste Tire Clean-up that the district provided from 1997 to 2005.

Residents were allowed to bring up to 50 car or passenger truck tires to the collection free of charge. Tires in excess of 50 were accepted but for a fee of \$1.00 per tire. Any tires larger than a passenger truck tire was also charged a \$1.00 fee. A signed waiver was necessary stating that no funds had been accepted for disposal of the tires.



Tire Collection Total 1997-2005					
	Light-Duty Car Tires	Heavy-Duty Truck Tires	Farm and Construction Tires	Total Tires	Approx Tons
Adair	14,885	2,154	714	17,753	348
Clark	14,235	4,373	1420	20,028	537
Knox	14,632	1,656	783	17,071	339
Lewis	16,430	2,610	843	19,883	409
Schuyler	9,609	520	217	10,346	150
Scotland	17,144	2,912	1,272	21,328	489
Total	86,935	14,225	5,249	106,409	2,272

Residents of the counties brought their tires to a central collection point, and the Road and Bridge employees from Clark, Knox, Lewis, Schuyler and Scotland Counties unloaded them. The City of Kirksville’s Public Works Department provided the labor for the City of Kirksville and County of Adair.

The tires were recycled into a number of end market products; from tire-derived fuel to different types of crumb rubber raw material. The crumb rubber material was used in athletic tracks, football fields, mats, and many other products. The wire in the tires was extracted, and the metal also recycled.

Location: Adair, Clark, Knox, Lewis, Scotland, and Schuyler Counties

Date Implemented: 1997-2005

Time Required to Implement: Approximately 6 months

Project start-up Costs: In earlier years approximately \$35,000.00. However, the last clean-up only cost \$16,000.00. This is due to the implementation of the \$1.00 fee.

Staff Required: One person to assist with paperwork at the site. Each County provides 2-3 persons to help assist with unloading the citizens vehicles

Involved: Mo.DNR (funding-\$19,000 for advertising, travel, and hauling) and the 6 counties

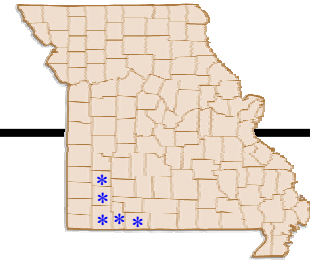
Contact Info: Janna Cline, Project Coordinator
 Region C Solid Waste
 PO Box 248, Memphis, MO 63555
 660 465-7281
 jannacline@nemorpc.org

Benefits

- Reduces breeding grounds for mosquitoes
- Provides rural areas with tire disposal service
- Reduces illegal dumping
- Diverts waste from landfills
- Provides feed stock for new products

SWMD-Region N: Processing

Recycling & Waste Reduction Initiatives



Project Summary

The Missouri Solid Waste Management District, -Region N serves portions of Southwest Missouri in the Table Rock Lake region.

One of the first recycling projects in the district was the opening of the City of Branson Regional Processing Facility in 1993. This facility serves **23,000** vehicles a year and recycled **700 tons** of material in 2006. Materials accepted include: tin cans, glass, aluminum cans, magazines, newspapers, cardboard, #1 and #2 plastics, electronics, motor oil, plastic bags, bubble wrap, shrink wrap, trash bags, household chemicals, mixed paper, phone books hardback books, and paperback books.

The Branson facility has one full-time employee and uses manpower from the Developmental Center of the Ozarks, local volunteers, students from College of the Ozarks, and community service workers from the City, County and State.

The Branson Regional Processing Facility not only receives recyclables from residents who live in or drive to Branson to recycle, but also from several drop-off sites in Stone and Taney Counties. Trailers filled with recyclables are received from Crane, Kimberling City and College of the Ozarks once a month; Eastern Taney County twice a month; Indian Point and Reeds Spring every three months, and a load of glass is received from Eastern Taney County every two months. A recent addition is a new trailer bringing recyclables from Bull Creek. Additionally, a trailer is currently being built to serve Big Cedar Lodge.

The City of Monett and surrounding areas are served by the Monett Regional Recycling & Processing Center. This facility receives recycling trailers from Aurora and Verona and has recycled **233.51** tons of materials since 2004. A grant from Solid Waste Management District M has allowed Region N to open several Household Hazardous Waste Sites. Branson opened a site in 2006, Monett in 2007, and Branson West/Kimberling City will be opening a facility soon.



Location: Barry, Dade, Lawrence, Stone, and Taney Counties

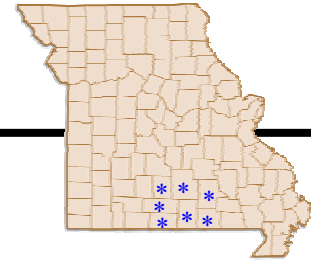
Contact Info: Joyce Stroud
SWMO Solid Waste Mgmt. District N
PO Box 27
205 15th Street
Monett, MO 65708
417 236-9012
swaste@mo-net.com

Benefits

- Residents are able to recycle a variety of materials that are diverted from landfills
- HHW collections help keep the environment clean
- **700 tons** recycled in 2006 at Branson Regional Processing Facility
- **233.51 tons** recycled since 2004 at Monett Regional Recycling & Processing Center
- Involves volunteers

SWMD-Region P: Multiple Programs

Recycling & Waste Reduction Initiatives



Project Summary

Long distances between households are not conducive to curbside collection, but the residents of South-Central Missouri make good use of recycling options that address their needs. With a population of 120,000, this region generates substantial amounts of material that can be diverted from the landfill.

When Shannon County implemented curbside recycling pick-up for households in Eminence, Winona and Birch Tree, the county continued to maintain its centrally-located recycling drop-off points that are also used by many Ozark and Oregon county residents as they pass through or shop in those communities.

A Material Recovery Facility (MRF) located in Mountain View processes the region's recyclables, including paper, cardboard, aluminum and steel cans, and food and beverage containers made of glass and plastics #1 and 2. Localized sorting and baling of recycled items minimizes transportation costs and garners maximum sale value.



SWMD and state grants have extended local funds available for MRF equipment purchases, including a glass crusher. "Our crushed glass is used as an aggregate in asphalt and concrete projects for the city," reports manager Dave Abbey. "Mountain View saves \$5-6 per ton on aggregate by mixing in recycled glass. This saving helps pay for the machine." The Black Oak landfill in Hartville generates about **\$250,000** per year for grants that support collection, education, equipment upgrades, and other projects that promote waste reduction, recycling, reuse and composting in the seven county area.

To address one of the region's special waste management problems, SWMD funds have underwritten Waste Tire Amnesty Days since 1996. Recovery from these events averages about 10,000 tires per year. Waste tires collected in this region are primarily recycled into playground surfaces by a business in Macon, or they are first processed into chunks at the state prison in Jefferson City then burned as fuel in a St. Louis power plant.

The region's solid waste district has held 129 collections for household hazardous waste since 1997, with grant funds covering fees for contractors licensed to safely transport and dispose of materials. A certified crew of seven, plus other volunteers, handles paint, oil, batteries, pesticides and other items. Electronic waste, including computers, monitors, television sets and other items, has been accepted on a pilot basis at some collections.

Participation in HHW collections in Region P averages about 70 cars per recovery date, with events rotating through the seven counties. Thirteen collections held in 2007 served 914 cars.

Location: Douglas, Howell, Oregon, Ozark, Shannon, Texas and Wright Counties

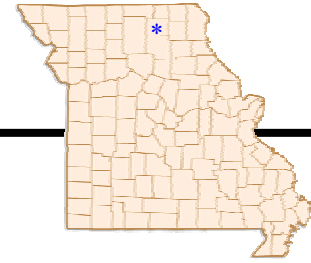
Contact Info:

Lynda Roehl, District Coordinator
South Central SWMD (Region P)
5436 Highway 17
Eunice, MO 65468
417 932-5345
t.roehl@train.missouri.org

Benefits

- Savings from the use of crushed glass
- Reduction in mosquitoes and rats from tire recovery events
- Hazardous materials diverted from landfill and the environment
- Volunteer involvement

Truman State University: Recycling Glass



Scrap Glass

Project Summary

More than two years ago Truman State University held a ribbon cutting ceremony for a new glass recycling machine that would provide area residents the option of recycling their glass.

“The success of the program was contingent upon the citizens willingness to bring their rinsed glass to Truman’s Recycling Center and they did,” Howard Worcester, Truman’s recycling coordinator, said.

The first two months of operation the Center averaged approximately 100 pounds of glass a day. Today, the Center averages more than **1800 pounds** a day.



The machine grinds glass to a coarse sand, which can then be used as drainage fill, pothole filler, sidewalk construction and numerous artistic projects. Truman has already used more than **30 tons** on campus in various cement and pipe fill projects. The recycled glass will continue to be used in various construction projects.

Recycled glass was used in a Rotary Club project for a new walking trail near the community center on the Kirksville Senior Living Campus in September 2004. The recycled glass serves as the sand base for a four-foot wide concrete sidewalk. The recycled glass can be purchased for \$5 a ton.

Location: Adair County

Date Implemented: January 2002, 2005 opened new facility

Time Required to Implement: Minimal

Start-Up Costs: \$9,000

Staff Required: 1 Full Time Employee and 25 Part Time Student Workers

Involved: SWMD-Region C (funding-\$9,000 for glass grinder)

Contact Info:

Howard Worcester – Recycling Coordinator
Truman State University
100 E. Normal
Kirksville, MO 63501
660 785-7672
howard@truman.edu
recycling@truman.edu

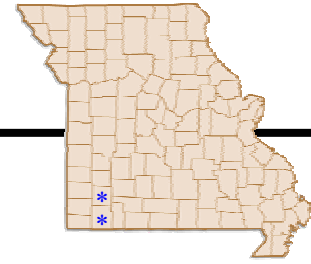
In addition to glass recycling Truman State has a campus recycling program that collects cardboard, magazines, paper, books, newspapers, plastic, aluminum, batteries, and printer cartridges.

Benefits

- More than **4,000,000 pounds** of recyclable material diverted from the landfill since 2005
- More than **\$50,000** of revenue collected from the sale of material
- Creates marketable product from waste material
- Only glass recycler in northeast Missouri
- Offers student employment

Tyson Foods: Companywide Recycling

Multiple Commodities



Project Summary

In 2004, the Tyson Foods facility in Monett sent more than **780 tons** of solid waste to the landfill. At that time, the facility was already recycling plastic tubs, wooden pallets, plastic pallets, metals, and cardboard.

The Environmental Management Systems Committee recommending improving recycling efforts and reducing solid waste, resulting in the implementation of a more intensive company recycling program. The new program included: replacing the dumpster with a compactor, educating team members about recycling bins placed in the break area, training floor workers to recycle during production, training sanitation and housekeeping staff in recycling, and ensuring that production recycling was taking place in all areas of the facility. Tyson Foods also ceased purchasing cardboard trash totes.



Reduction in waste disposal costs (as fees have increased):
FY'04 - \$57,550
FY'05 - \$23,975
FY'06 - \$19,877
FY'07 - \$14,998

A year after expanding the recycling program (FY 2005), a **48.9%** reduction in solid waste was reached, and the next year (FY 2006), solid waste was again reduced by **31%**. As a direct result, the Monett facility has sent less waste to the landfill over the past two and a half years than was sent in 2004.

Additional items recycled are aprons, gloves, paper, plastic, strapping, and shrink wrap. Extra incentives encourage employees to recycle. For example, all money collected by recycling aluminum cans is collected into a fund for employees.

Each year on Earth Day, a recycling center is set up for team members, families, friends, and contract growers to encourage them to recycle. Trailers are provided to recycle metals, paper, magazines, and plastic. The celebration educates the team members and the community about recycling practices.

Tyson Foods has also worked with a local school to establish up a printer cartridge recycling program.

Location: Barry and Lawrence Counties
Date Implemented: 2004
Time Required to Implement: 1 year
Start-Up Costs: 0
Employees: No additional staff required
Involved: Service Recycling, and All Points Recycling

Contact Info:
Becky Thomas
Tyson Foods
800 County Road
Monett, MO 65703
Phone: 417 235-9327
Fax: 417 235-9381
Becky.thomas@tyson.com

Each cartridge donated brings the school \$3.

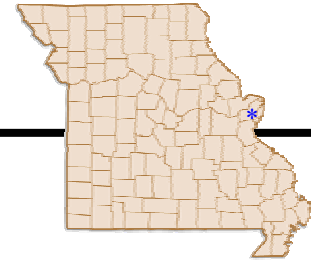
The Tyson Aurora Feed Mill has also implemented a recycling program and reduced their waste by **60%**. They have decreased the number of times per week their dumpsters are pulled from 5 to 2. The Tyson Hatchery has reduced pulls by **75%**, from 2 per week to twice a month.

Benefits

- Reduction in solid waste which is diverted from landfills and recycled
- Employee involvement and education
- Partnership with a local school

University City: Single Stream Recycling

Multiple Commodities



Project Summary

University City Began Recycling in 1970. U. City has been implementing innovative recycling programs for over three decades. In 1973, U. City became one of the first municipalities in Missouri to offer curbside recycling to our residents. Since then, the program has continued to expand. Today, the city owns and operates a Materials Recovery Facility (MRF), Compost Site and a fleet of recycling vehicles. University City uses its own workforce to collect from 16,000 households in single- and multi-family buildings; about 70% of the residents participate. Each year residents recycle about **25%** of their household waste stream.

In May 2006, University City implemented a pilot Single Stream Recycling Program. The City was challenged with becoming more efficient in daily solid waste operations. Single stream recycling uses all-in-one containers, eliminating the need to separate paper, plastic, glass, aluminum, and steel. Select areas including 142 homes, received new recycle carts for all of their recyclables, eliminating the need for multiple bins. Participants received one large recycling container to replace the current yellow and blue recycling bins. In U. City most of the items placed in the trash can be recycled. Approximately **20,000 pounds** of materials were collected during the twelve month pilot period. Surveys were mailed to participants during the pilot period. Over **90%** of them rated the program as good to excellent and that single stream recycling was easy to do at the curbside.

Since the pilot, Single Stream was implemented in 2,500 more homes in November 2007 and the program is expected to be citywide by spring of 2008.

Location: St. Louis County

Date Implemented: May 2006

Pilot Period: 7 months

Start-Up Costs: \$70,000 for carts and \$50,000 for automated recycling vehicle (from general revenue)

Staff Required: 1 Account Clerk, 1 Driver (received added responsibilities, no new hires)

Involved: St. Louis-Jefferson SWMD (funding-\$142,000 for citywide expansion)

Contact Info:

Evelyn Shields-Benford, Public Works Director
314 862-6767

eshields@ucitymo.org

Lynnette Hicks, Senior Public Works Manager
314 505-8567

lhicks@ucitymo.org

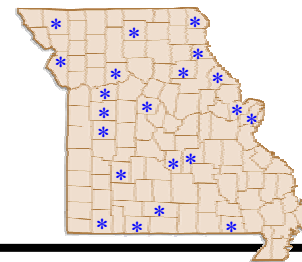
City of University City
Public Works Department
6801 Delmar Blvd.
University City, MO 63130
www.ucitymo.org



Benefits

- **\$24,000** saved in saved in waste hauling fees and expenses during pilot project..
- **10 tons** of material recycled during pilot project
- Single stream highly rated by participants

University Extension's Environmental Assistance Center: Lamp Recycling



Fluorescent, mercury vapor, and sodium lamps

Project Summary

The Missouri Statewide Fluorescent Lamp Recycling Project was established in 2006 to recapture materials that are 100% recyclable and to reduce amounts of mercury contaminating our state. Over 3,000 tons of fluorescent lamps are dumped into Missouri landfills each year releasing nearly 500 pounds of mercury into the environment.



The Environmental Assistance Center (EAC) partnered with HTR-Group, a state-of-the-art fluorescent lamp recycling company located in Lake Ozark, Missouri. With a grant from Mo.DNR, the EAC and HTR-Group have established 20 lamp collection sites (see web site below for details) at sheltered workshops and recycling centers throughout the state. The sites consolidate fluorescent, mercury vapor, sodium, and other lamps from generators such as retailers, manufacturers, and even specialty businesses, such as theaters and tanning salons. Consolidation reduces the cost of recycling for the businesses and provides small revenue for the sheltered workshops and recycling centers.

While the program is still in its infancy, it is obvious that informing customers of the lamp-recycling program is the key to success. Phillip Lingard, Sr., director of Enterprise Unlimited sheltered workshop in Bolivar, had a huge increase in participation from existing and new customers following a direct mailing to area businesses and institutions.

The Northeast Missouri Sheltered Workshop and the Mark Twain SWMD have begun communicating to area businesses the importance of recycling fluorescent lamps. This approach has been so successful, that on a normal cardboard pick-up, a customer had set aside spent lamps because they had heard of the program by word of mouth.

Location: State-wide

Date Implemented: 2006

Time Required to Implement:
18 months

Start-Up Costs: \$67,857 grant; \$16,963 match

Staff Required: .60 Full Time Employee

Involved: HTR-GROUP Lamp Recycler, Mo.DNR (funding)

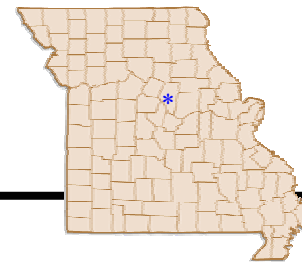
Contact Info: Marie Steinwachs
EAC Director
steinwachsm@missouri.edu
573 882-5011
www.htr-group.com/recycle

The fluorescent lamp recycling program was designed to be sustainable. Though the MDNR funding has ended, the EAC will continue to lend technical support and to promote the lamp recycling program through its ongoing pollution prevention activities.

Benefits

- Diverted **4,050** lamps going to landfills in the first 6 months
- Prevented release of almost **0.2 lbs** of mercury
- Collected **9.5 lbs** of ballasts for recycling
- Established new revenue generating industry at 20 sheltered workshops and recycling centers
- Recovered over **2,540 lbs** of glass, aluminum and phosphorous

University of Missouri-Columbia: Campus Recycling



Multiple Commodities

Project Summary

Recycling has been a part of the culture at MU for over 25 years, to hold down waste disposal costs, protect the environment, and save energy and resources. Nearly **1,900 tons** of recyclable materials were collected from the campus in 2005, a 26% recycling rate.

Approximately half was from commercial type operations like Printing Services and Records Management and the other half from residence halls, Student Unions, and academic and administrative buildings.



Materials recycled in 2006:

500 tons of cardboard, 1200 tons of mixed paper, 200 tons of beverage containers and metals, 10 tons of fluorescent bulbs and 1.5 tons of batteries.

“26% is a respectable rate but we can do a lot better” commented Solid Waste and Recycling Coordinator Steve Burdic. A recent solid waste audit identified an additional 27% of the waste stream that could be recycled. Plans are being explored to compost much of the livestock bedding from the Vet School and food waste from dining facilities.

Mixed paper is collected in 90-gallon roller carts spread around campus. Building occupants bring their paper to the carts where it is collected weekly by a private recycling company, Civic Recycling. Cardboard is taken by building occupants to designated dumpsters, from two to eight yards capacity, which are also collected by Civic Recycling. Civic also maintains two cardboard compactors. The City of Columbia maintains three dual compactors with one side for trash and one for cardboard.

There are 110 sidewalk recycling containers, serviced by the City of Columbia, to provide students, faculty and staff the opportunity to recycle glass, aluminum and plastic beverage containers. A grant from the Mid-Missouri Solid Waste Management District-H, will fund an additional fifty sidewalk containers. Future plans include additional beverage container recycling inside campus buildings.

Location: Boone County

Date Implemented: Late 70's

Time required to implement: Twenty years-ongoing

Start-Up Costs: Current contract is \$25,000 yearly

Staff Required: Recycling Coordinator and Volunteers

Involved: Mid-Missouri Solid Waste Management District H (funding), City of Columbia, Civic Recycling

Contact Info: Steve Burdic, Solid Waste & Recycling Coordinator
Campus Facilities Landscape Services
2 University Garage
Columbia, Missouri 65211
573 882-7287
cell 573 619-5323
burdics@missouri.edu

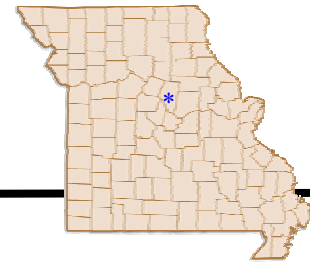
Many laboratory chemicals and supplies are recycled back into the system by the Environmental Health and Safety Department. Surplus Property sells much that would otherwise be thrown away and those totals are not currently included in the recycled category. These materials are being analyzed and will be counted where possible.

Benefits

- **1,900 tons** of materials recycled in 2005
- Opportunities for students to make recycling a part of their life, now and in the future
- Laboratory chemicals and other supplies are recycled back into the system
- Useable items are sold by Surplus Property and diverted from landfills
- Uses volunteers

University of Missouri-Columbia: Stadium Recycling

Used Beverage Containers

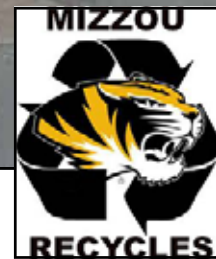


Project Summary

Home games at the University of Missouri in Columbia now offer the opportunity for fans to recycle their beverage containers through a partnership between the University and the Anheuser-Busch Green Team.

The collaboration began with the 2005 football season and **11 tons** were collected that fall. Encouraged by their success all collaborators worked to expand and improve for the next season, and the amount collected jumped to **19.6 tons** in 2006.

Prior to the fall '05 season the Anheuser-Busch Recycling approached the University and offered to provide containers and financial support to kick off the project. Sustain Mizzou, the student environmental organization, enthusiastically supported the idea and agreed to provide volunteers during the games. At each home game the volunteers handed out recycling bags as the tailgaters arrived at the parking lots surrounding the stadium. They also gave the fans information on what to recycle, where to place their full bags, and, perhaps most importantly, they thanked people for making the effort to recycle. During and after the game the volunteers collected the filled bags and transported them to designated locations. From there they are collected and taken to a container provided by the City of Columbia Public Works Department. The City then sorts, weighs, and bales the materials.



Location: Columbia, Missouri

Date Implemented: Fall 2005

Time Required to Implement:

Start-Up Costs: \$20,500

Staff Required: 10 Student Volunteers, 3 Staff Per Game

Involved: Anheuser-Busch Recycling (funding-\$10,000 for containers and bags), MMSWMD-H (funding-\$11,000 for containers and storage shed), University of Missouri-Columbia-Campus Facilities, Landscape Services, and Intercollegiate Athletic Department, Sustain Mizzou, N.H. Scheppers Distributing, City of Columbia

Contact Info: Steve Burdic
Solid Waste & Recycling Coordinator
Campus Facilities Landscape Services
2 University Garage
Columbia, Missouri 65211
573 882-7287
Cell 573 619-5323
burdics@missouri.edu

For the second season the University, Anheuser Busch Recycling and the Mid Missouri Solid Waste Management District-H provided funding to purchase 250 recycling containers and a storage shed for them. These bins will also be available for other outdoor events and encourage even more campus recycling.

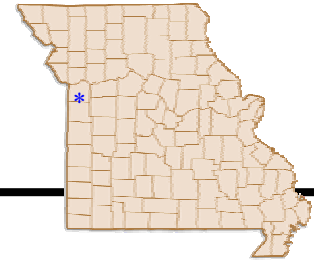
Again and again the volunteers and staff heard positive statements from the football fans. People appreciated the efforts made to help them keep the games clean and green.

Benefits

- Diverts recyclables from the landfill
- Educates the public
- Uses volunteers

University of Missouri-Kansas City: Campus Recycling

Multiple Commodities



Project Summary

In the 2001/2002 school year, Bridging the Gap, a not-for-profit environmental organization based in Kansas City, was awarded a grant from the Missouri Department of Natural Resources for a study involving assessment and recommendations on recycling at the UMKC campus. Teams and subcommittees were created; staff, students and faculty were surveyed; data was gathered and assessed; and comprehensive recommendations were made. The assessment found that there was a lack of campus involvement in a passive campus recycling program.

Although there was white paper recycling, the entire recycling program was too decentralized. Marketing and communication were found to be non-existent. In addition, 43% of the waste stream was corrugated cardboard.



The study found that there was the potential at UMKC for 800 tons of waste to be diverted from landfills annually at a savings of \$90,000 to \$96,000 in the first year alone.

An improved program would provide the campus with a safer, cleaner environment and demonstrate a commitment to the Kansas City community by developing sustainable waste management practices.

Two grants totaling **\$44,000** were awarded to UMKC from Solid Waste Management District E and the Missouri Department of Natural Resources for implementation of their plan. The implementation rollout was planned for the 2004-2005 school year.

A recycling team, consisting of staff, faculty and students, has been instrumental in event planning, placement of bins, signage for bins, educational materials, and an education and communication plan. Their vision states: "Success of the program will be demonstrated by participants' viewing recycling on campus as a "norm" and by the program's ability to partner with organizations beyond the campus for collaborative effort that benefits the Kansas City community."

Location: Jackson County

Date Implemented: 2004

Time Required to Implement: 2.5 years

Start-Up Costs:

Staff Required:

Involved: Bridging the Gap, MARC-Solid Waste Management District E (funding-\$22,000 for containers, educational materials, and printing), and Mo.DNR (funding-\$20,000 for equipment)

Contact Info: Corey Key, Building Services Manager
816 235-1630
keycf@umkc.edu

To date there has been a **\$332,000** savings with the new program, **\$13,000** savings in the first six months alone. A **\$1,000,000** savings is projected by the six and a half year mark.

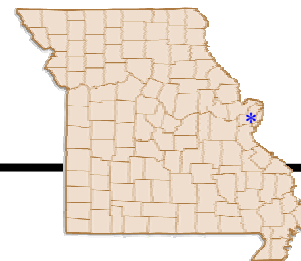
Benefits

- **\$332,000** savings in trash and landfill costs
- Potential for **800 tons** diverted from landfills annually
- Increased campus involvement
- Cleaner, safer campus environment

Web Innovations & Technology Services Inc.:

Reuse First, Then Recycle

E-Scrap



Project Summary

WITS, a member of *e-cycle St. Louis*, is the largest nonprofit recycler in Missouri. WITS is dedicated to helping underserved populations and nonprofits by providing them with recycled and refurbished electronic and computer items. The items are donated by local and national organizations, companies, and individuals. Donated items are put back into the community for educational use and provide those in need with the technology to further education or career goals. This also keeps used equipment out of landfills.

Fifteen to twenty collection events are hosted each year. The Earth Day and America Recycles Day events are two of the largest collection events in the nation and bring in **10 to 12** tractor trailer loads of items each. WITS also has a collection site where items can be brought for donation.



WITS is involved with demanufacturing and recycling, as well as a reuse. Any materials not reused are recycled onsite. Recycling services are offered to businesses to assist them with the appropriate recycling of their electronic, business, office, medical, and industrial equipment. WITS is one of only three recyclers in the United States that accepts almost all bulky recyclables.

A partial list of accepted items includes (fee charged for some): small appliances, most home and office furniture, white goods, medical and diagnostic equipment, industrial machinery, lawn equipment such as tools and mowers, old motors, and CDs, VHS, DVD, cassette, DAT and all types of data tapes.

Location: St. Louis County-collection events all over Missouri and Illinois; in 2007 opened facilities in Illinois

Date Implemented: August 2004

Time Required to Implement: 2 years

Start-Up Costs: \$25,000

Employees: 17 Full Time Employees (processing and drop off site) and 50 to 125 employees and volunteers for collection events.

Involved: Mo.DNR (funding), St. Louis-Jefferson SWMD (funding), Boeing, United Way, American Red Cross, St. Louis Zoo, KSKD Channel 5, Channel 2, WB11, West End World, St. Louis Community College, Cities of Hazelwood, Jennings, Florissant, Clayton, University City, St. Charles, Chesterfield, Town & Country and Creve Couer; Jefferson County, Bick Group, St. Louis Public Schools, E-womennetwork, ESPW, MWCC and MORA

Contact Info:

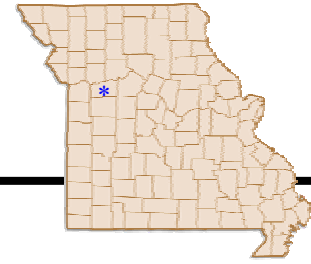
Angela Haas, President
647 East Holly
St. Louis MO 63147
314-382-6345
ahaas@witsinc.org
www.witsinc.org

Benefits

- Recycled/reused **1.5 million lbs** in 2005
- Recycled/reused over **3 million lbs** in 2006
- **4.5 million lbs** projected recycled/reused in 2007
- Convenient operating hours and days open to serve more residents at drop off site
- Pickup range includes the whole state of Missouri and Western Illinois
- Lowest cost recycler in Missouri
- Pickup services to businesses and residents who are unable to drive to the drop off site
- Gives back to the community (low income families, seniors, handicapped, terminally ill and veterans homes)
- Uses volunteers

West Central SWMD-Region F: Collection Events

E-Scrap



Project Summary

The first electronic scrap (e-scrap) collection in West Central Missouri Solid Waste District-Region F was held by Lafayette County, April 1, 2006, in conjunction with the Lafayette County Household Hazardous Waste (HHW) and Waste Tire Collection for 2006.

Items accepted for recycling had to be small enough to be lifted by one person and included computer monitors, CPU'S and accessories, printers, mice, key boards and speakers, software, floppy disks and CD's, electronic games and accessories, televisions, VCR's and CD players, fax and copy machines, adding machines and calculators, and cordless and cell phones. No fee was charged for drop-off.



The twelve county road district buildings served as collection points for 460 monitors, 160 television sets, 45 microwaves, in addition to numerous other computer and electronic waste items. A grant from the West Central Missouri Solid Waste District-Region F provided the

funds for the Lafayette County e-scrap collection as well as the county's yearly HHW and tire collection. Collection was simplified because it occurred on the same day as the yearly HHW and tire collections.

Location: Lafayette County

Date Implemented: 2005-2006

Time Required to Implement: 1 year

Start-Up Costs: \$10,000

Staff Required: Lafayette Co Commission – Two people to assist in picking up electronics after the drop-off day; Two road district personnel from each of the 12 road district buildings.

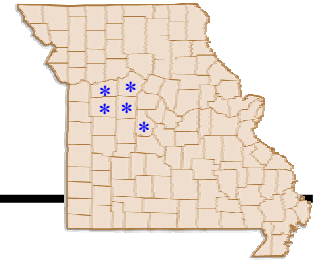
Involved: Computer Recycling Center, Special Road Districts of Lafayette County, Mo.DNR Prairie Rose Resources Conservation & Development

Contact Info: Nikki Knipmeyer, SWMD-Region F
Pioneer Trails Regional Planning Commission
PO Box 123, 802 S. Gordon St., Concordia, MO 64020
E-mail: Nicole@trailsrc.org

Benefits

- Gives rural areas a convenient drop-off for electronic waste
- Reduces stored electronic waste
- Reduces landfill needs

West Central SWMD-Region F: Illegal Dumping Awareness



Education

Project Summary

West Central Missouri Solid Waste District Region F partners with county commissioners, the county sheriff's department, and contributing county businesses, to provide illegal dumping awareness to fifth grade students through this project. After an informal presentation, the students create illegal dumping awareness posters.

Each participating school conducts a poster contest and provides at least one winning poster for the final contest. A final competition among the thirteen semi-finalists is held at the county courthouse with the public voting for the top winning poster of the thirteen. A calendar is created using the thirteen winning posters with the finalist on the cover. A billboard is produced from the top winning poster and appears in six different locations in the participating county. The top winning student is recognized in a formal award ceremony in the county commission chambers.



Local businesses support the project through donations. Chambers of commerce provide an excellent arena for discussing the projects and, in the process, educating all chamber members about illegal dumping. As schools are contacted, the school administrators are educated about the problem persuaded to include their schools in the project. From there students, teachers and staff hear the message and the contest spreads the word throughout the school. The final contest at the courthouse informs the public while including them in the selection of the winner.

The calendars are distributed to the participating schools, for each 5th grade student, other students, teachers and staff. The county commission, sheriff's department, and participating businesses are given copies to pass out to visitors, clients and customers. Everyone who looks at the calendar throughout the year gets the illegal dumping awareness message, and the billboard presents the message to the many motorists passing by each day.

Location: Johnson, Lafayette, Morgan, Pettis and Saline counties

Date Implemented: 2003

Time Required to Implement: 9 Months

Involved: County Commission, County Sheriff's Department, local businesses, Lamar Advertising, Interstate Printing, Mo.DNR, Prairie Rose Resource Conservation & Development, WCMSWMD-F (funding-\$10,000 for travel, production and distribution of calendar, and billboard rental)

Contact Info:

Nikki Knipmeyer, SWMD-Region F
Pioneer Trails Regional Planning Commission
PO Box 123, 802 S. Gordon St.
Concordia, MO 64020
E-mail: Nicole@trailsrpc.org

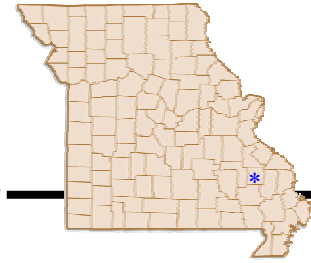
A grant from the West Central Missouri Solid Waste District Region F provides funds for the project. The county commission provides litter bags and participating businesses provide matching funds allowing the calendars to be distributed for free.

Benefits

- Provides effective, far-reaching communication about illegal dumping awareness
- Education about illegal dumping
- Involves children

Yemm & Hart, Ltd: Recycled Content Materials

Recycled Polyethylene Plastic, Polyvinyl Chloride, Rubber, and Wine Corks



Project Summary

Yemm & Hart originated as a Missouri custom contract furniture manufacturing company marketing its capabilities nationally through the architectural and design community. In 1988, Y&H was asked by Missouri Enterprise if they could make furniture from a slab of recycled plastic made from milk jugs. The answer was yes, and Y&H has pursued this path to where it is now. Today, Y&H products are in almost every major city in the USA. The products are commercial restroom partitions, counter tops, resilient flooring and material for retail store fixtures and commercial sculpture/art.



Yemm & Hart extends the life of extracted natural resources. These natural resources are polyethylene plastic from milk and detergent bottles, polyvinyl chloride with polyester fibers from auto upholstery, rubber from auto and truck tires, and wine cork stoppers. The raw materials are sourced from regional 1st step processors located nearest to the next step processors. Y&H manufacturers recycle these materials into useful interior construction materials primarily installed in commercial buildings.

Initially, Y&H wanted to do all of the converting and processing in Missouri but realized that the capital investment required to produce a high quality product was beyond the company's reach. To make it happen, Y&H has partnered with major processors in other states who were already producing something similar to what the company wanted to produce. For example, machinery for making panels from virgin polyethylene can process the recycled version just as well.

Yemm & Hart manages the manufacturing of their products in over a **dozen different locations in 5 states** from their home office in the Missouri Ozarks. To date Y&H estimates the company has diverted over **600 tons** of extracted natural resources that would have otherwise gone into landfills.

Location: Madison County

Date Implemented: 1989

Time Required to Implement: 10 years to development viability

Start-Up Costs: \$100 - a bootstrap operation that was very difficult in the early years

Employees: 2 Full Time Employees

Involved: No outside assistance was provided or other agencies involved

Contact Info:

Stephen W. and Deborah Hart Yemm
Yemm & Hart
1417 Madison 308
Marquand MO 63655-9153
573 783-5434
www.yemmhart.com
yemmhart@earthlink.net

Benefits

- Contracts with local shops for marketing materials
- Created the nation's first wine cork collection site in Missouri
- Supports national and Missouri environmental groups
- Serves as an example of Missouri environmental awareness to the nation
- Has recycled over **600 tons** of materials from landfills

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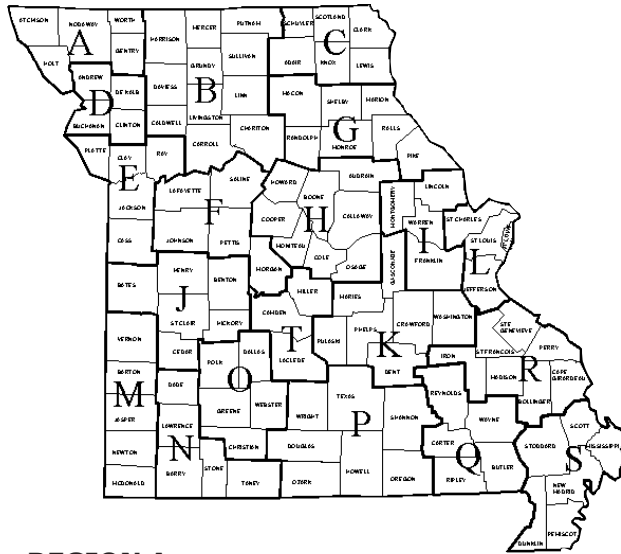
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Missouri Solid Waste Management Districts

View the contact information and a direct link to contact information from each county at the Missouri Department of Natural Resources Web site: www.dnr.mo.gov/env/swmp/swmd/swmdinfo.htm



REGION A - Northwest Missouri SWMD

114 W. Third, Maryville, MO 64468
(660) 582-5121 www.nwmorcog.org

REGION B - North Missouri SWMD

1104 Main St., Trenton, MO 64683
(660) 359-5086 www.nmswmd.org

REGION C - Northeast Missouri SWMD

Box 248, Memphis, MO 63555
(660) 465-7281 www.nemorpc.org

REGION D - Region D Recycling & Waste Mgt. Dist.

P.O. Box 139, Clarksdale, MO 64430
(816) 393-5250 www.regiondrecycling.com

REGION E - Mid-America Reg. Council SWMD

600 Broadway, Ste 300, Kansas City, MO 64105
(816) 474-4240 www.marc.org/Environment

REGION F - West Central Missouri SWMD

P.O. Box 123, Concordia, MO 64020
(660) 463-7934 www.trailsrpc.org

REGION G - Mark Twain SWMD

42494 Delaware Lane, Perry, MO 63463
(573) 565-2203 www.marktwaincog.com

REGION H - Mid-Missouri SWMD

P.O. Box 6015, Columbia, MO 65205
(573) 874-7574 www.mmswmd.org

REGION I - East Central SWMD

P.O. Box 429, Warrenton, MO 63383
(636) 456-3473 www.boonslick.org

REGION J - Quad-Lakes SWMD

908 N. Second St., Clinton, MO 64735
(660) 885-3393

REGION K - Ozark Rivers SWMD

#4 Industrial Dr., St. James, MO 65559
(573) 265-2993 www.meramecregion.org

REGION L - St. Louis-Jefferson SWMD

7525 Sussex Ave., St. Louis, MO 63143
(314) 645-6753 www.swmd.net

REGION M - Region M SWMD

P.O. Box 388, Webb City, MO 64870
(417) 782-3515 www.hstcc.org

REGION N - Southwest Missouri SWMD

P.O. Box 27, Monett, MO 65708
(417) 236-9012

REGION O - Solid Waste District O

940 Boonville Ave., Rm. 305, Springfield, MO 65802
(417) 859-5786

REGION P - South Central SWMD

5436 Hwy. 17, Eunice, MO 65468
(417) 932-5345

REGION Q - Ozark Foothills Regional SWMD

3019 Fair St., Poplar Bluff, MO 63901
(573) 785-6402 www.ofrpc.org/rpc.html

REGION R - Southeast Missouri SWMD

P.O. Box 366, Perryville, MO 63775
(573) 547-9357 www.semorpc.org

REGION S - Region S Bootheel SWMD

105 E. North Main, Dexter, MO 63841
(573) 614-5178 www.bootrpc.org

REGION T - Lake of the Ozarks SWMD

P.O. Box 786, Camdenton, MO 65020
(573) 346-5616

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16	City of O'Fallon	L
77	Recycle Works	L
92	University City	L
29	EnviroPak	L
52	Missouri Botanical Garden	L
73	Plastic Lumber Company of America, LLC	L
80	Rustique Enterprises, Inc	L
62	Neighbors Assisting Neighbors-Community Clean Sweep	L
63	Neighbors Assisting Neighbors-Tire Collection	L
36	Haz-Waste Inc.	L
72	Peerless Resource Recovery	L
26	e-cycle St. Louis	L
19	City of St. Louis	L
37	HEGER	L
85	Strategic Materials, Inc.	L & E
15	City of Joplin	M
30	Fiberlite Technologies, Inc.	M
83	Silver Dollar City	N
91	Tyson Foods	N
75	Purdy R-II School District	N
88	SWMD-Region N	N
9	City of Branson	N
5	Black Oak Organics	N
64	Nestle Purina PetCare	O
21	Computer Recycling Center	O
89	SWMD-Region P	P
82	Shannon County	P
25	DoCo, Inc.	P
32	Grisham Farm Products	P
69	Ozark Foothills SWMD-Region Q	Q
74	Proctor & Gamble	R
100	Yemm & Hart Ltd	R
24	Delta Fibers	S
39	HTR-Group	T

PAGE	BUSINESS/ENTITY	SWMD
44	Laclede Industries	T
8	Circle Environmental	Statewide
93	University Extension's Environmental Assistance Center	Statewide
57	Mo. DNR-Scrap Tire Playground Cover and Surfacing	Statewide
27	EIERA	Statewide
58	Mo. DNR-Waste Reduction and Recycling Grants	Statewide
59	Mo. DNR-Waste Composition Studies	Statewide

INDEX - Funding Sources

Financial Assistance - Many of the programs below received financial assistance from one of the following: Solid Waste Management District, Mo. Department of Natural Resources, EIERA Market Development Program or the Federal Government.

ENTITY	TITLE	PAGE	SWMD	EIERA	STATE	FED	GRANT
Abitibi Paper Retriever	Paper Recycling	1					
Andrew County	Drop-Off Programs	2	x				
Anheuser-Busch Recycling Corporation	Comprehensive Recycling	3					
Aquila	Tire Derived Fuel (TDF) Project	4					
Black Oak Organics	Composting	5		x	x		
Boonslick Industries, Inc	Sheltered Workshop Recycling	6	x	x	x		
Brewer Science	Working Toward Sustainability	7					
Circle Environmental	Recycling Oil	8					
City of Branson	Hazardous Waste Collection	9	x				
City of Cameron	Drop-Off and Curbside Recycling	10	x				
City of Chesterfield	Citizens Committee for the Environment	11	x		x		
City of Columbia	Apartment Recycling	12	x				
City of Columbia	Compost Program	13		x			
City of Columbia	Convenience Store Recycling	14					
City of Joplin	HHW Satellite Collection	15	x		x		
City of O'Fallon	Single Stream Recycling	16	x				
City of Rolla	Recycling Center	17	x				
City of Savannah	Recycling Program	18	x				
City of St. Louis	Infomational Kiosks	19			x		
Clinco Industries, Inc.	Sheltered Workshop Processing	20	x		x		
Computer Recycling Center	E-Waste Recycling	21	x				
Coon Manufacturing, Inc.	Plastic Recycling	22		x	x		
Creative Candles	Company-Wide Recycling	23					
Delta Fibers	Waste into Products	24		x			
DoCo, Inc.	Waste to Mulch	25		x			
e-cycle St. Louis	E-Waste Recycling	26					
EIERA	Market Development Program	27					
Environmentally Sound Products	Vermicomposting	28					
EnviroPak	Paper Recycling	29		x			
Fiberlite Technologies, Inc.	Paper Recycling	30	x	x			
Galamba Metals Group, LLC+B65	Metal Processing	31					
Grisham Farm Products	Recycled Food	32		x			
Hallmark Cards, Inc.	Company-Wide Recycling	33					
Hallmark Cards, Inc.	Composting	34					
Harry S. Truman Sports Complex	Stadium Recycling	35	x		x		
Haz-Waste Inc.	Waste Management	36	x		x		
HEGER	Recycling Equipment	37					
Hope Haven Industries, Inc.	Sheltered Workshop Processing	38					
HTR-Group	Zero Waste	39	x		x		
Jackson County	County Wide Recycling	40					
Jackson County Detention Center	Agency Wide Recycling	41					

ENTITY	TITLE	PAGE	SWMD	EIERA	STATE	FED GRANT
Kansas City Habitat Re-Store	C & D Reuse	42	x		x	
Kansas City Regional By-Product Synergy Initiative	Industrial Ecology	43	x	x		x
Laclede Industries	Glass Crushing	44		x		
Loganbill Enterprises, Inc.	Mulching and Composting	45	x	x		
Main Squeeze	Reuse, Composting, and Recycling	46				
Meramec Regional Planning Commission	Adopt-A-Dump Program	47	x			x
Mid-America Regional Council SWMD-Region E	Recycling & Waste Reduction Initiatives	48				
Mid-MO Recycling	Zero Waste Policy	49				
Midwest Quality Gloves	Plantwide Recycling	50				
Missouri Bio-Products, Inc.	Grease Recycling	51		x		
Missouri Botanical Garden	Plastic Recycling	52				
Missouri Organic Recycling	Composting	53	x	x	x	
Mo. Department of Corrections	In-Vessel Composting	54			x	
Mo. Department of Labor and Industrial Relations	Shredding and Recycling	55				
Missouri Department of Natural Resources	Green Building	56				
Missouri Department of Natural Resources	Scrap Tire Playground Cover/Surfacing	57				
Missouri Department of Natural Resources	Waste Reduction and Recycling Grants	58				
Missouri Department of Natural Resources	Waste Composition Studies	59				
Mo. OA Technology Services Division	Recycling Styrofoam	60				
Mo. State Recycling Program	Self-Serve Recycling	61				
Neighbors Assisting Neighbors	Community Clean Sweep	62				x
Neighbors Assisting Neighbors	Tire Collection	63			x	
Nestle Purina PetCare	Recycled Paper	64	x	x	x	
New World Recycling	For-Profit Collection and Drop-Off	65	x		x	
North Missouri SWMD-Region B	Recycling & Waste Reduction Initiatives	66				
Northeast Correctional Center/Career & Technical Department	Computer Reuse	67				
Northwest Missouri SWMD-Region A	Tire Collection	68	x			
Ozark Foothills SWMD-Region Q	Multiple Programs	69			x	
Ozark Rivers SWMD-Region K	Multiple Programs	70	x		x	x
Parkway School District	School District-Wide Recycling	71	x		x	
Peerless Resource Recovery	Recycling Shingles	72	x		x	
Plastic Lumber Company of America, LLC	Recycling HDPE	73	x	x		
Proctor & Gamble	Recycling Diaper Dust	74		x		
Purdy R-II School District	School Recycling	75	x			
RAMM Enterprises, Inc.	Recycling Mattresses	76		x		
Recycle Works	Drop-Off Centers	77	x		x	
Recycling and Waste Management District-Region D	Collection Events	78			x	

ENTITY	TITLE	PAGE	SWMD	EIERA	STATE	FED GRANT
Reusables Project	Reusing Scrap	79	x			
Rustique Enterprises, Inc	Recycling Plastic	80		x		
Ryan Enterprises, Inc.	Recycling Plastic	81	x	x	x	
Shannon County	Rural Recycling	82			x	
Silver Dollar City	Park-Wide Recycling	83				
St. Louis-Jefferson SWMD-Region L	Recycling & Waste Reduction Initiatives	84				
Strategic Materials, Inc.	Recycling Glass	85	x	x		
Surplus Exchange	Extending the Life of Usable Items	86		x	x	x
SWMD-Region C	Tire Collection	87			x	
SWMD-Region N	Processing	88				
SWMD-Region P	Recycling & Waste Reduction Initiatives	89				
Truman State University	Recycling Glass	90	x			
Tyson Foods	Company-Wide Recycling	91				
University City	Single Stream Recycling	92	x			
University Extension's Environmental Assistance Center	Lamp Recycling	93			x	
University of Missouri-Columbia	Campus Recycling	94	x			
University of Missouri-Columbia	Stadium Recycling	95	x			
University of Missouri-Kansas City	Campus Recycling	96	x		x	
Web Innovations & Technology Services Inc.	Reuse First, Then Recycle	97	x		x	
West Central SWMD-Region F	Collection Events	98				
West Central SWMD-Region F	Illegal Dumping Awareness	99	x			
Yemm & Hart Ltd	Recycled Content Products	100				

Resources

A list of resources and links can be found on the Web at www.MORA.org.

MISC. GOVERNMENT LINKS

Missouri Department of Natural Resources	http://www.dnr.state.mo.us/
Missouri DNR Recycling & Solid Waste	http://www.dnr.mo.gov/env/swmp/index.html
Mo. Solid Waste District List/Map	http://www.dnr.mo.gov/env/swmp/swmd/swmdingo.htm
Missouri Municipal Solid Waste Composition Study	http://www.dnr.mo.gov/env/swmp/pubs-reports
Missouri DNR Strap Tires	http://www.dnr.mo.gov/env/swmp/tires/tirelist.htm
Missouri DNR E-scrap Stakeholder Workgroup	http://www.dnr.mo.gov/env/hwp/escrap/workgroup.htm
Missouri DNR Construction & Demo Waste	http://www.dnr.mo.gov/env/cdwaste.htm
Missouri DNR Household Hazardous Waste	http://www.dnr.mo.gov/env/swmp/hhw/hhw.htm
Missouri State Recycling Program	http://www.oa.mo.gov/purch/recypro.html
Missouri Department of Conservation	http://www.conservation.state.mo.us/
Missouri General Assembly	http://www.moga.state.mo.us/
EPA Region 7	http://www.epa.gov/region07/
EPA Climate Change Information	http://epa.gov/climatechange/index.html
EPA Waste Reduction Model (WARM)	http://epa.gov/climatechange/wycd/waste/calculators/WARM_home.html
EIERA	http://www.dnr.mo.gov/eiera/
USDA Rural Development	http://www.rurdev.usda.gov/

MISC. POLITICAL LINKS

Missouri Democratic Party	http://www.missouridems.org/
Missouri Republican Party	http://www.mogop.org/
League of Women Voters	http://www.lwvmissouri.org/
Missouri ProVote	http://www.missouriprovote.org/
Republicans for Environmental Protection	http://www.repamerica.org/mo/mo_index.html

ENVIRONMENTAL LINKS

100 Top Recycling Sites	http://www.100toprecyclingsites.com/recycling/
Audubon Missouri	http://mo.audubon.org/
Audubon Society of Missouri	http://www.mobirds.org/
Call 2 Recycle	http://www.call2recycle.org/
Center for a New American Dream	http://www.newdream.org/
Conservatree	http://www.conservatree.com/
e-cycle Missouri	http://www.e-cyclemo.org/
e-cycle St. Louis	http://www.ecyclestlouis.org/
Earthways Center	http://www.earthwayshome.org/
eBay Electronics Online Exchange	http://www.ebayelectronics.com/
Environmental News Network	http://www.enn.com/
Green Restaurant Web Site	http://www.dinegreen.com/
Greenway Network Inc.	http://www.greenwaynetwork.org/
Hooked on Recycling	www.hookedonrecycling.com
Hotel and Restaurant Recycling	http://www.mwcog.org/dep/recycle/mentor/seven.htm
Indiana Institute on Recycling - Over 100 case studies	http://www.web.indstate.edu/recycle/caselist.htm
Institute of Scrap Recycling Industries, Inc	http://www.isri.org/
Lamp Recycling	http://www.nema.org/lamprecycle/
Mid-Missouri Peaceworks	http://peaceworks.missouri.org/
Midwest Assistance Program	http://www.map-inc.org/

ENVIRONMENTAL LINKS

Missouri Coalition for the Environment	http://www.moenviron.org/
Missouri Environmental Education Association	http://www.meea.org
Missouri Organic Association	http://www.missouriorganic.org/
Missouri Votes Conservation	http://www.movotesconservation.org/Home.aspx?Cont
Missouri Waste Control Coalition	http://www.mowastecoalition.org/
National Recycling Coalition (NRC)	http://www.nrc-recycle.org/
National Wood Recycling Directory	http://www.afandpa.org/recycling/wood/search.htm
Nature Conservancy of MO	http://nature.org/wherewework/northamerica/states/mis
NERC Environmental Benefits Calculator	http://www.nerc.org/documents/aboutcalc1003.html
No More Trash	http://www.nomoretrash.org/
Online Waste Exchange	http://www.wastetraders.com/
Open Space Council	http://www.openspacecouncilstl.org/
Pollution Prevention	http://www.p2ric.org/
Rechargeable Battery Recycling Corporation	http://www.rbrc.org/
Recycle Auction Group	http://www.ragauction.com/
Recycle Books	http://www.recyclebooks.org/
Recycle Spot	http://www.recyclespot.org/
Resource Recycling Web Site - Recycling in Cyberspace	http://www.resource-recycling.com/lnks.html - Rogers_column
Reuse, Reduce, Recycle Tips For the Christmas Holiday Season	http://www.dnr.mo.us/alpd/swmp/holiday.htm
Sierra Club Eastern Missouri Group	http://www.missouri.sierraclub.org/emg
Sierra Club Ozark Chapter	http://www.missouri.sierraclub.org/
Simplify the Holidays	http://www.newdream.org/
Solid Waste Association of North America	http://www.swana.org/
St. Louis Audubon Society	http://www.stlouisaudubon.org/
Throw Place	http://www.throwplace.com/
US Composting Council	http://www.compostingcouncil.org/
US EPA Environmentally Preferable Purchasing Website	http://www.epa.gov/oppt/epp
Use Less Stuff	http://www.use-less-stuff.com/ULSDAY/42ways.html
Use Less Stuff - 42 Ways to Trim Your Holiday Wasteline	http://www.use-less-stuff.com/ULSDAY/42ways.html
Waste Reduction Tips	http://www.recycle.cc/
Wildlife Center of Missouri	http://www.mowildlife.org/
WITS	http://www.witsinc.org/
Worldscrap	http://www.worldscrap.com/
Worldwatch Institute	http://www.worldwatch.org/

