
Missouri State Government Annual Recycling Report Fiscal Year 2012



**Prepared by the State of Missouri,
Office of Administration**

Acknowledgements

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*Special thanks to the **Department of Natural Resources’ — Solid Waste Management Program, Missouri Interagency Recycling Committee (MIRC), department recycling coordinators and purchasing staff** who contributed to this report. The Missouri State Recycling Program wants to thank all **state employees** for their ongoing efforts to reduce, reuse, recycle, and buy recycled-content products.*

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Questions, comments or suggestions regarding this report or the State Recycling Program may be directed to the State Recycling Coordinator.

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Recycling Symbol on Cover Page

The “chasing arrows” recycling symbol is internationally recognized and was born out of a national design competition in the United States in 1970 - the same year as the nation’s first Earth Day. Many people associate recycling with the act of tossing a can, bottle, or other material into a recycling container; however, this is only one part of the entire recycling process.

The recycling symbol appearing on the cover of this year’s report provides a more detailed accounting of the entire “recycling loop” and offers a better understanding of the important role recycling plays in Missouri’s economy as evidenced by the following economic data:

- *“Scrap & Waste” exports regularly exceed \$100 million per quarter (MO Economic Research & Information Center)*
- *Employs over 28,000 workers (2005 MO Recycling Economic Information Study)*
- *Produces annual sales over \$5 billion (2005 MO Recycling Economic Information Study)*
- *Annual payroll over \$707 million (2005 MO Recycling Economic Information Study)*

*A special thank you to the **Environmental Improvement Energy Resources Authority, Missouri Market Development Program** for providing the recycling logo graphic on the front cover of this report.*





Jeremiah W. (Jay) Nixon
Governor

Doug Nelson
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James Miluski
Director

January 1, 2013

To the Members of the General Assembly of the State of Missouri,

In accordance with RSMo 34.031, the Office of Administration is submitting the Fiscal Year 2012 (FY12) Annual Recycling Report to summarize state government's accomplishments in the areas of recycling, waste reduction, and recycled content product procurement for the period of July 1, 2011 through June 30, 2012.

State law directs state agencies to implement policies for recycling, waste reduction, and procurement of recycled content products. The Missouri State Recycling Program, administered by the Office of Administration, Division of Purchasing and Materials Management, is responsible for assisting state agencies in these areas. The State Recycling Program works cooperatively with the Missouri Interagency Recycling Committee (MIRC) to facilitate recycling and waste reduction by state employees.

As a result of the efforts of state employees and MIRC, the Recycling Program experienced a successful year in FY12 as evidenced by a 34 percent increase in recycling revenues from the Jefferson City contract and a 12 percent increase in the revenues generated by the Department of Corrections compared to FY11. Overall, FY12 recycling revenues experienced an increase of 2 percent compared to FY11. Income generated from recycling during FY12 also marked the highest one-year total in the program's history. The recycling efforts of state government continue to reduce the amount of waste generated at state facilities and the related costs of waste disposal. Waste reduction achievements of several agencies are summarized on pages 12 – 16 of this report.

We appreciate the support of the General Assembly in our recycling efforts.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas E. Nelson".

Douglas E. Nelson
Acting Commissioner of Administration

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I. Missouri State Recycling Program Organization

What is the Missouri State Recycling Program?

The Missouri State Recycling Program (**MSRP**) was established in 1989 when legislation added sections 34.031 and 34.032 to Chapter 34 of the MO Revised Statutes. The purpose of the **MSRP** is to assist State of Missouri government agencies with:

- **Procurement** of products manufactured with recycled materials.
- Coordinating **waste reduction** strategies.
- Overseeing the **collection** of recyclables by establishing recycling services contracts.

Who is the MSRP?

There are three components to the **MSRP's** organizational chart.

The **state recycling coordinator** is dedicated to the planning and administration of recycling and waste reduction activities.

The **Missouri Interagency Recycling Committee** serves an important purpose by providing input on recycling initiatives and communicating with state employees about various recycling programs.

The efforts of **state employees** to recycle ensures the success of any recycling initiative. State employees that recycle are considered a part of the **MSRP**.



What is the Missouri Interagency Recycling Committee?

The Missouri Interagency Recycling Committee (**MIRC**) was established in 1994. It was recognized the **MSRP** needed a way to communicate procurement and recycling policies throughout state government. **MIRC** is a vital component of the **MSRP** and meets regularly to discuss issues dealing with recycling collection, waste reduction, recycling market conditions and recycled product procurement.

Who is MIRC?

The Recycling Committee is composed of representatives from various state departments (executive, judicial, and legislative). To learn more about recycling in your department, please contact your **MIRC** member.

A list of members is located on the internet at www.oa.mo.gov/purch/recycling/mirc.pdf

Missouri Interagency Recycling Committee (MIRC)

By communicating “buying recycled” procurement and recycling collection programs to their respective departments, MIRC members function as the core of the MO State Recycling Program (MSRP). The work of committee members varies - from providing important input regarding MSRP projects such as recycling contracts to monitoring recycling containers to ensure these are being emptied.

Each year MIRC members are involved with the annual recycling award process by submitting and voting on the nominations.

Another yearly process requiring MIRC member attention is the annual recycling questionnaire. The questionnaire is a key component of the process related to the annual recycling report. Results of the



MIRC Meeting | August, 2012 | Runge Conservation Nature Center | Jefferson City

FY12 recycling questionnaire can be found on pages nine, ten, sixteen, eighteen, and nineteen of this report. The annual reporting process provides an important assessment of state government recycling efforts each fiscal year.

MIRC members also assist with recycling at numerous events throughout the year - including the Department of Natural Resources’ Earth Day celebration and the Missouri State Fair.

2012 MIRC Members



L. to R. 1st Row: Anita Stansfield (DNR), Debbie Davis (DivCU), Angie Bisges (OSCA), Rachel Dietzel (DESE), Ashley Burnett (MoDOT), Rhonda Dormire (DHSS) | **2nd Row:** Gary Burlingame (DOR), Mike Haake (DMH), Kevin Wideman (MoDOT), Kristin Allan Tipton (EIERA), Cindy Norman (MoDOT), Gary Stoll (DOC), Nancy Tennison (STO) | **3rd Row:** Rhonda Fogelbach (DPS), Kevin Baclesse (DSS), Pete Peterson (MOSASP), Jim Aslakson (MDC), Nathan Troup (SOS), Rob Didriksen (OA) | **Not Pictured:** Vernon Morris (OA), Glenda Vanderfeltz (OA), Alan Clements (MDA), Joan Whittle (MDA), Karen Wood (MDA), Jennie Rees (DOC), Ron Doerhoff (DED), Lindsay Sanders (DED), Leroy Wade (DHE), Shirley Gerling (DIFP), Kim Sandbothe (DIFP), Leanne Lorts (DIFP), Brenda Ardrey (DNR), Deb Goodman (MOANG), Lisa Tyree (MOANG), Becky Imhoff (DOR), Brenda Davis (DOR), Stacey Jacobs (STC), Sue Hilkemeyer (MCHCP), JoAnn Looten (MOSERS), Judy Murray (Governor), Kerry Kroll (AGO), Mark Henley (Auditor), Don Dickey (Supreme Court), Dawn Korsmeyer (Supreme Court), Brad Werner (House), Jon Burton (Senate), Barbara Morrow (HSSU), Hiedi Carlin (MSSU), Carey McMillian (MWSU), John Viau (NWMSU), Sarah Steinnard (SEMO), Laura Stock (SEMO)

Photos this page taken by: Maryann Craig

II. FY12 Overview: Collection of Recyclables

Local Recycling Services Contracts

During Fiscal Year 2012 (FY12), the Missouri State Recycling Program (MSRP) administered two local recycling services contracts. The Jefferson City and Kansas City areas were provided recycling services under these contracts for recycling of office paper and cardboard. In the Jefferson City area, the contract provided state agencies with an option to recycle plastic bottles and aluminum cans.

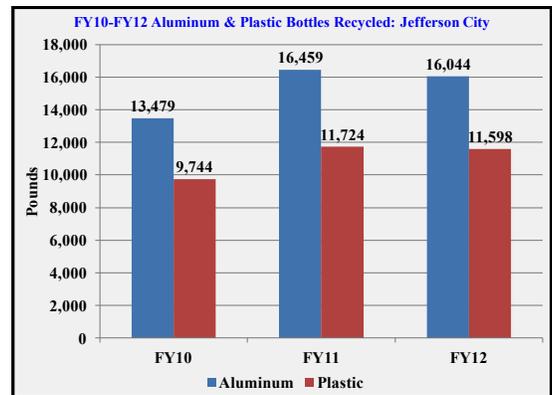
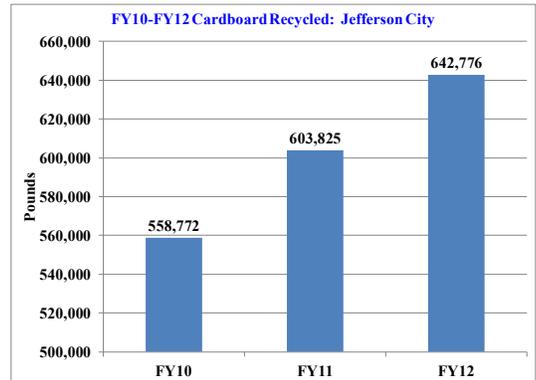
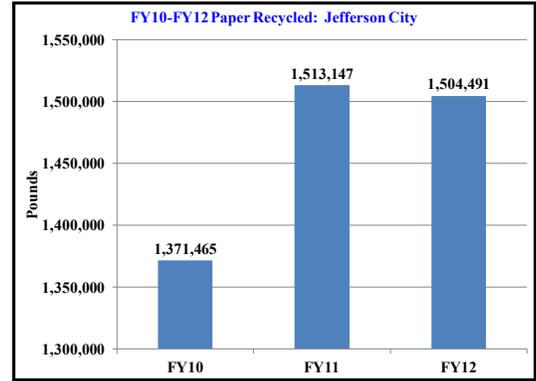
Jefferson City

As a result of state agency recycling activities under the Jefferson City contract, \$110,256 in revenue was generated for the State Recycling Fund. The revenue generated in FY12 represents a 34 percent increase over FY11. This is attributable to historically high markets for recovered paper.

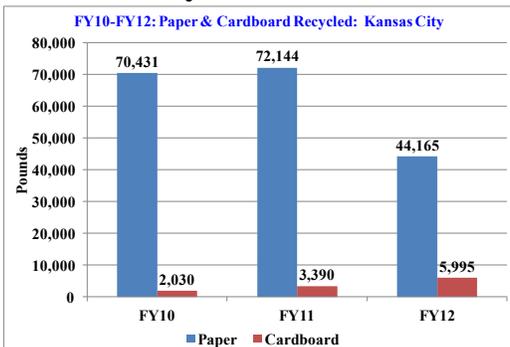
The number of locations on the loose cardboard collection route increased from forty-five (FY11) to fifty-two in FY12. Total cardboard collected — including baled and loose material — amounted to an estimated 642,776 pounds. This amount includes 73,976 pounds of baled cardboard collected from the Truman Building and the Highway Patrol warehouse. This means on average more than 12,300 pounds of cardboard is recycled per week by state employees in Jefferson City.

The commingled beverage container recycling infrastructure continued to mature as three new locations were added to the collection route bringing the total number of locations to 39. State agencies recycled a total of 16,044 pounds of aluminum cans and 11,598 pounds of plastic bottles in FY12.

The subcontractor, Kingdom Projects (a sheltered workshop), provided loose cardboard collection services and sorted commingled beverage containers at their recycling facility located in Fulton.



Kansas City



During FY12, the Kansas City contract offered state agencies the opportunity to recycle cardboard and mixed office paper. The amount of paper recycled in Kansas City in FY12 was 44,165 pounds. Cardboard recycled in Kansas City increased in FY12.

Statewide Recycling Services

The Missouri State Recycling Program (MSRP) administered two no-cost statewide recycling services for state agencies in FY12. These convenient services allowed state employees to recycle printer cartridges or rechargeable batteries. In addition, the Office of Administration’s Division of Purchasing and Materials Management administered two fee-based contracts for document destruction and lamp recycling.

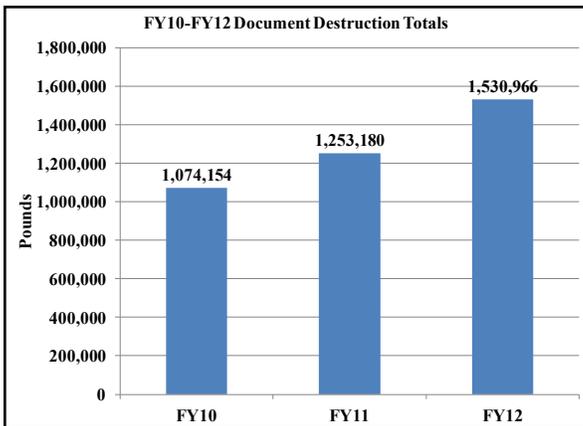
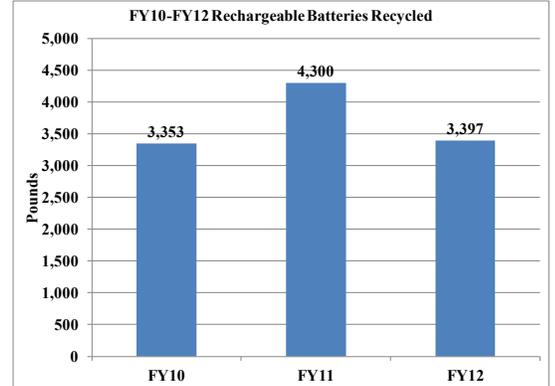
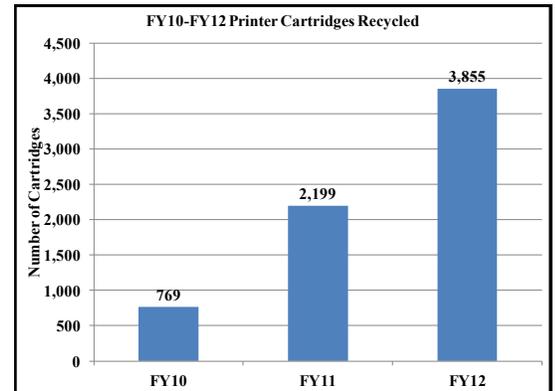
No-Cost Services

Printer Cartridge Recycling

As is seen in many Missouri communities, state agencies have options for recycling printer cartridges. The chart to the right details only those recycling activities where state agencies used either the State Recycling Program’s printer cartridge collection service or MO Vocational Enterprises’ (MVE) service. Agencies that returned printer cartridges to the “original equipment manufacturer” (OEM) are not accounted for in this chart. MVE collections were included in FY12 figures which accounts for the increase from the previous year.

Rechargeable Battery Recycling

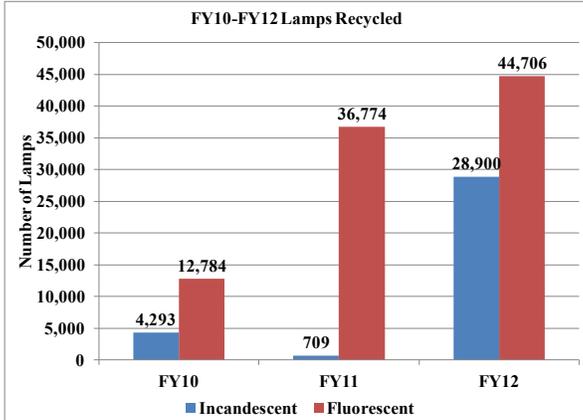
Eight departments utilized the rechargeable battery recycling service and recycled 3,397 pounds of rechargeable batteries. Over the past eight years, Missouri state government efforts have resulted in the recycling of 35,422 pounds of rechargeable batteries. Forty-three locations throughout Missouri utilized this service in FY12.



Fee-Based Services

Shredding & Records Disposal Contract

This service contract provided state agencies throughout Missouri an opportunity to have confidential documents destroyed and the shredded paper recycled. Cost for services varied and was based on document volume and the location of the state agency. The chart to the left shows 22 percent growth of this service from FY11 to FY12.



Lamp & Ballast Recycling Contract

This contract allows for the recycling of fluorescent and incandescent lights and related equipment (i.e., ballasts), as well as non-rechargeable batteries. The number of fluorescent lamps recycled in FY12 grew by 22 percent as compared to FY11. The sharp increase with incandescent lamp recycling is connected to MoDOT retrofitting less efficient lamps with more energy efficient fluorescent fixtures. MoDOT recycled 28,736 of the

FY12 Department Reports of Materials Recycled

Number of Pounds Recycled	MOSERS	Conservation	Corrections	Elementary & Secondary Educ.	Health & Senior Services	Secretary of State	Northwest Missouri State University	Insurance, Finan. Inst., Prof. Reg.	Mental Health	Natural Resources	Office of Administration	Public Safety	Revenue	Social Services	Transportation	Totals by Material
Aluminum	76	535	68,891 C	C	C	C	1,601	C	1,151	10,186 C	1,241 C	250 C	C	C	102,784	202,759
Ballasts		1,025				481			71	751	22,834				904	26,066
Batteries-Non Rechargeable		100			2				1,896	218	52				1,718	3,986
Batteries-Rechargeable		2,653	2,459		77				823	1,389	3,473	3,307		4	5,219	19,404
Cardboard	C	650	1,210,957 C	C	C	C		C	115,775 C	18,707 C	5,598 C	350 C	C	C	76,121 C	2,076,929
Commingled Materials		8,060	234,192							19,616						261,868
Electronic Scrap			2,200						600	80					5,213	122,080
Food-Yard Waste			1,701,000			160,500				4,295		67				1,865,862
Glass		510				8,997				3,571						13,078
Magazines & Catalogs		300							5,025	2,650						7,975
Media, Storage											18,000				986	18,986
Mixed Office Paper	C	8,300	285,593 C	4,000 C		187,920 C		1,269 C	200,664 C	110,631 C		33,000 C	463,190 C	76,740 C	399,187 C	5,242,436
Newsprint		150	4,259						321	3,970						8,700
Plastic			43,724		1,045	1,588			3,735	60						
Rubber, Scrap	C	3,020	C	C	C	C	35,935	C	16,028	C	C	C	C	C	47,146	163,879
Tires		200	7,860						1,480	15,200		265,372			1,464,360	1,754,472
Scrap Metal		1,834	336,934		12,800		27,726		3,145	115,463	51,963	481,653	6,860	11,980	5,545,773	6,596,131
Styrofoam									108							108
Telephone Books		30							992	199					675	1,896
Textiles			1,293									91,505				92,798
Tin / Steel Cans		50	883,488						936	691		100			1,036	886,301
Totals Reported by Agency	76	27,417	4,782,850	4,000	13,924	189,508	627,560	1,269	348,907	311,459	103,221	875,604	470,050	88,724	7,651,122	19,365,712
Total Pounds Recycled in FY12:																19,365,712

Note on Boxes with C's: A "C" in a box on this table indicates an agency recycled the designated item by utilizing the Jefferson City (JC) recycling services contract. Materials collected via the JC contract include **Aluminum, Cardboard, Mixed Office Paper, and Plastic**. A box that has a number over a "C" indicates the agency reported material that was recycled, but not reported in the JC contract figures. For example, Public Safety reported 250 pounds of aluminum recycled and Public Safety offices in JC utilized the JC Recycling Contract to recycle aluminum.

Note on "Totals by Material": This column includes totals for **Aluminum, Cardboard, Mixed Office Paper, and Plastic** include figures reported by recycling contractors. The total for Electronic Scrap includes information reported by Surplus Property. These figures are summarized in a table on p. 10 of this report. Agencies that utilized a recycling contract, but do not appear in this table include: **State Auditor, State Treasurer, Economic Development, Higher Education, Lottery, Senate, House of Reps, Supreme Court, MCHCP, Tax Commission, Labor, Attorney General's Office, Governor's Office, Agriculture, and Office of State Courts Administrator**. Amounts of materials recycled by these agencies are included in the "Totals by Materials" column. (see explanation under "contractual reporting" on top of p. 10)

FY12 Department Reports of Materials Recycled (cont.)

Contractual Reporting / Surplus Property Summary Information for Table on Page 9

Total pounds recycled by agencies utilizing the Jefferson City and Kansas City recycling services contracts as well as the document destruction contract are summarized in the table to the right. These figures are reported as cumulative totals. Due to contract reporting, data is reported by building and it is not feasible to separate data by agency where there are multiple agencies in the same building.

FY12 Recycling Contract Totals	Jefferson City	Kansas City	Document Destruction
Paper	1,504,491	44,165	1,530,966
Cardboard	642,776	5,995	Figures represent pounds
Aluminum	16,044		
Plastic	11,598		

FY12 Total Pounds Recycled via Surplus Property Service	Electronic Scrap	113,987
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Total pounds recycled by agencies utilizing State Surplus Property is summarized in the table to the left. For the past five years the State Recycling Program has been working with Surplus Property to measure surplus materials that are recycled.

Number of Items and Gallons Recycled Table

Number of Items Recycled	Books, Bound Publications	Cell Phones	Fluorescent Lamps	Incandescent Lamps	Printer Cartridges	Fuel/Oil Filters	Pallets	Wood Posts	Number of Gallons Recycled								
									Anti-freeze	Diesel / Gasoline	Oil, Cooking	Oil, Motor	Paint				
Insurance, Financial Inst., Prof. Reg.					8												
Northwest Missouri State University							30,000						560				
Labor & Industrial Relations					23												
Elementary & Secondary Education			153		100												
Treasurer's Office					83												
Agriculture					4												
Conservation		61	77		42	275							1,900				
Corrections		19			1,528	229	4,765						40		1,603	3,645	
State Auditor					22												
Health & Senior Services					30												
Mental Health	45	33	120		768	14	440							5,279	647		
Natural Resources		36	93		488	29	5								858	25	
Office of Administration		53	34,458	164	16		1,001										
Public Safety			5,518		737	1,126	1,396						100	10	2,100	5,025	
Revenue			70		1												
Social Services		6			121												
Transportation		502	10,155	30,136	495	300	2,502	35,681					2,478			50,541	1,047
TOTALS	45	710	50,644	30,300	8,321	1,973	40,109	35,681					2,618	10	8,982	63,176	1,072

Note on Total Printer Cartridges: 3,855 printer cartridges were recycled by employees using a statewide service for this item and are included in the TOTALS amount shown in this table. **Note on Agency-Specific Printer Cartridges:** Figures appearing for individual agencies may not be an accurate reflection of the number of printer cartridges recycled. In some buildings agencies utilize a centralized recycling drop-off for cartridges and it is not feasible to separate agency data once recycled. See p. 8 "Printer Cartridge Recycling" for additional explanation.

Measuring the Environmental Savings of Materials Recycled*

The Department of Natural Resources' Division of Energy utilized the Environmental Protection Agency's Waste Reduction Model (WARM) as a way to measure the environmental savings of materials recycled by state agencies in FY12. Essentially WARM is a life-cycle analysis tool that has been in development for over 10 years.

The WARM model helps us to better understand the benefits of alternative end-of-life waste management decisions such as recycling. This model is a lifecycle assessment tool which considers the energy usage and greenhouse emissions from raw material extraction until product disposal. This includes material assessment, all product transportation, manufacturing, and disposal. The model compares different disposal scenarios such as recycling, landfill, incinerating, composting, and source reduction.

The following carbon dioxide and energy reduction estimates include a majority of the materials listed in the tables on page 9 and top of page 10 of this report. Materials not included in the WARM model calculations include - Books/Bound Publications; Cell Phones; Fluorescent Lamps; Incandescent Lamps; Printer Cartridges; Fuel/Oil Filters; Pallets; Wood Posts; Anti-freeze; Diesel/Gasoline; Cooking Oil; Motor Oil; Paint; and Wood Posts. All of these items appear on p. 10 in the "Number of Items and Gallons Recycled Table". In addition, Styrofoam; Storage Media; Batteries (rechargeable/non-rechargeable); and Ballasts from the "Number of Pounds" table on p. 9 are not included in the WARM model calculations. The 122,080 pounds of electronic scrap was processed with the WARM model based on the assumption this figure represented personal computers.

Carbon Dioxide Reductions Related to Recycling*

State of Missouri recycling efforts resulted in an estimated reduction of greenhouse gasses of 28,651 MTCO₂E (metric tons of carbon dioxide equivalent). This is equivalent to . . .

- **Removing annual emissions from 5,618 passenger vehicles or ...**
- **Conserving 3,211,962 gallons of gasoline or ...**
- **Conserving 1,193,779 cylinders of propane used for home barbeques or ...**
- **Conserving 156 railway cars of coal**

Energy Reductions Related to Recycling*

The amount of material recycled by state employees in FY12 resulted in an estimated reduction in energy use of 307,663,000,000 (over 300 billion) BTUs. This amount of energy is equivalent to . . .

- **Conserving 2,737 households' annual energy consumption or ...**
- **Conserving 52,954 barrels of oil or ...**
- **Conserving 2,461,307 gallons of gasoline**

*Department of Natural Resources' Division of Energy calculated these estimates utilizing the EPA's WARM model.



Missouri State Recycling Program Annual Awards

Each year the State Recycling Program accepts nominations for the Annual Recycling Award. Employees, departments, or agencies are eligible to be nominated for outstanding contributions made in the areas of recycling collection, waste reduction, and/or recycled content procurement. Members of the Missouri Interagency Recycling Committee review the nominations and vote for an individual and agency award. The State Recycling Program encourages nominators to submit information demonstrating the *value* of the nominee’s recycling efforts. *Value* could include costs avoided, revenue generated, ongoing leadership/commitment/passion/enthusiasm, or environmental benefits.

FY12 Annual Recycling Awards

Individual Award: Frank Tidd, Missouri Department of Transportation

Frank Tidd and the crew at the DeSoto maintenance shop located in MoDOT’s St. Louis district developed a process that saved the state money, reduced the amount of resources used, and resulted in a safer driving experience for highway users.

Repair of “edge ruts” on Missouri’s highways is an ongoing part of maintaining these roads. At one time the DeSoto maintenance shop paid five dollars per ton for rock to fill these “edge ruts”. Last year large pieces of cinder were applied to “edge ruts” and proved to be more durable and there was no cost to MoDOT. This change in material saved an estimated \$15,000 in the first several months of use.

MoDOT gets cinders from coal burning power plants at no cost which are used to treat roads in rural parts of the state during winter operations. These large chunks of cinders were sifted out of the regular cinder supply. Use of these larger pieces of cinder to repair edge ruts means MoDOT does not need to use oil when making repairs. The large pieces of cinders also stay in place longer by resisting washouts.

The State Recycling Program congratulates Mr. Tidd and the DeSoto maintenance crew for implementing an idea that is saving money and resources.



Frank Tidd

Agency Award: Missouri Department of Transportation Route 141 Project Team - St. Louis County



L. to R. Casey Henning, Jason White, Nancy Leroney, Dave Rein | not pictured Josh Topper

A well thought-out plan known as “No Tree Wasted” produced many outstanding results for MoDOT’s Route 141 Project Team in St. Louis County – also earning this year’s team recycling award. The primary goal was to save or recycle trees impacted during construction.

Instead of allowing the contractor to clear all vegetation from the right-of-way, the clearing allowances were limited. It is estimated that 100 mature trees were saved by utilizing this approach.

MoDOT required that contractor not burn any removed vegetation. Instead the contractor hired a logging company to remove all of the harvestable trees for delivery to a saw mill. A total of 936 logs were harvested resulting in 289,000 board feet of lumber.

Trees that could not be harvested for lumber were mulched on-site and used for erosion control devices around streams, structures, and property lines. The mulch-type erosion control device replaced 2.5 miles of a traditional “silt fence” which is typically made from a type of plastic material. Upon completion of the project the mulch berm can simply be spread out for decomposition.

“No Tree Wasted” produced 308 tons of wood chips, 840 cubic yards of bark mulch, and 735 cubic yards of sawdust. (840 CY is equivalent to 6.5 48-foot tractor trailers filled from floor to ceiling | 735 CY is equivalent to six 48-foot tractor trailers filled from floor to ceiling).

The success of this more sustainable approach to road construction is now being utilized throughout Missouri.

How were the harvested trees used?

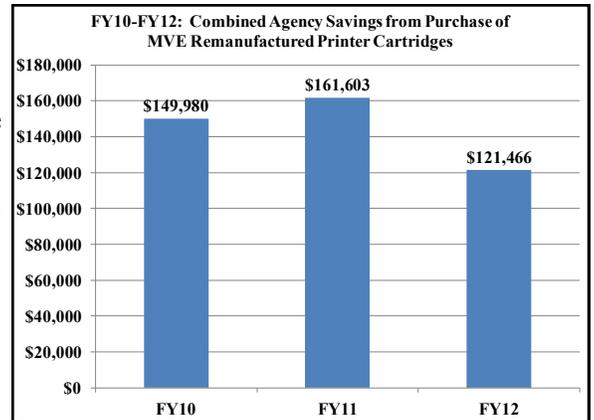
- ∞ Furniture Industry
- ∞ Hardwood Flooring & Cabinets
- ∞ Frames for Upholstered Furniture
- ∞ Shutters
- ∞ Boat Paddles
- ∞ Wood for the Pallet Industry

II. FY12 Overview: State Agency Waste Reduction / Recycling Accomplishments

Remanufactured Toner Cartridges: State Agency Savings

For more than 10 years, Missouri Vocational Enterprises (MVE) has offered a toner cartridge remanufacturing service for state agencies. This service has provided state agencies an opportunity to realize significant savings and reduce waste by reusing toner cartridges.

The chart to the right illustrates the combined agency savings over the past three years for agencies that purchased remanufactured toner cartridges from MVE. Savings are estimated by calculating the difference in price between MVE toner cartridges and non-recycled toner cartridges available from the office supply contract. From FY10 - FY12, state agencies have saved more than \$400,000 dollars by utilizing services provided by MVE.



How Green is the Missouri State Highway Patrol?

Answer: Very. The Missouri State Highway Patrol (MSHP) has a long track record with reducing waste and recycling. The success of recycling



Tin Cans from MSHP Cafeteria Dumped into Scrap Metal Bin

is a direct result of strong leadership from all levels of the MSHP organization. In 2006 the MSHP was honored for their recycling achievements as the recipient of the State Recycling Program's Annual Award. Since that time the MSHP has continued to expand the types of materials recycled and work towards custom recycling solutions that not only demonstrate MSHP's stewardship towards our environment, but also stewardship of the taxpayer's dollar.



Spent Ammo Prepared for Recycling

MO State Highway Patrol Recycling Overview

<u>Material</u>	<u>Recycling Solution</u>
∞ Paper	Sold as scrap
∞ Cardboard	Kingdom Projects - a sheltered workshop
∞ Plastic Bottles	Kingdom Projects
∞ Metal	Sold as scrap
∞ Printer Cartridges	Sold to be remanufactured
∞ Rechargeable Batteries	Recovered through product stewardship service
∞ Motor Oil	Used as a fuel to heat troop garages
∞ Signs	Recycled or Refurbished by MoDOT
∞ Spent Ammunition	Recycled and proceeds used to purchase new ammunition
∞ Pallets	Reused, refurbished, or recycled
∞ Cooking Oil	Recycled
∞ Uneaten Food	Donated to the Salvation Army
∞ Wood Desks	Refurbished by MO Vocational Enterprises

Department of Social Services Green Team



L. to R. **1st Row:** Greg Campbell, Florence Woldanski, Laura Hawkins, Brenda Kennedy | **2nd Row:** Ski Collins, John Mier | **Not pictured:** Tina Bieri, Brandon Casey, Barbara Kliethermes, Shertaurus Warmack

The Department of Social Services has a very dedicated group of recyclers at its facility located at 615 Howerton in Jefferson City. The Howerton Green Team is comprised of ten employees that ensure their fellow employees are informed about recycling and the material collected actually gets recycled. Green Team members don't hesitate to get their hands dirty and regularly collect cardboard, cans, and bottles from various parts of the building and haul to the dock area for collection. In addition the Green Team has implemented recycling services for rechargeable batteries, cell phones, and computer media such as CDs and floppy disks – making it easy and convenient for Social Services employees to recycle these items.

In FY12 Howerton Green Team efforts resulted in 22 tons (44,000 pounds) of material being recycled and kept out of the landfill. This translates into an estimated savings of over \$1,000 on trash hauling expenses. On average employees at the Howerton Building recycle 1,192 pounds of aluminum cans and plastic bottles each year.

5th Annual Zero Waste Challenge

The State Recycling Program coordinated the 5th Annual Zero Waste Challenge (ZWC) at the Department of Natural Resources' 2012 Earth Day celebration. The long term goal of this challenge is to strive for zero waste (trash and recyclables).

Zero Waste Challenge Measures	Total Waste (trash + recyclables)	Headcount (number registered)	Per Capita Waste Generation (lbs.)	% of TOTAL Waste Stream Recycled
2010	415.5	1056	0.39	49.0%
2011	262.1	1308	0.20	56.4%
2012	230.3	1377	0.17	62.4%

Each year the ZWC audits and weighs the trash and recyclables to determine the amount of waste (trash and recyclables) generated by each person. Two positive trends have developed from 2010 to 2012. First the percentage of material recycled has increased from 49 percent (2010) to 62.4 percent (2012). Secondly, the "per capita waste generation" has decreased from .39 pounds (2010) to .17 pounds (2012).

State Agency Recycling Efforts Avoid Cost of Waste Disposal

The efforts of agencies statewide resulted in a combined total of **9,683** tons (see chart on p. 9) of materials recycled in FY12. If this amount of material had been sent to landfills it is estimated the State of Missouri would have paid at least **\$462,557** in waste disposal costs. It is possible to calculate this cost avoidance based on the average tipping fee charged to waste haulers in Missouri. Tipping fees are paid by waste haulers for each ton of trash disposed in Missouri's landfills. The average tipping fee in Missouri was \$47.77 per ton in FY12.

The tipping fee is only one cost of doing business as a waste hauler. In addition to the tipping fee, a waste hauler includes labor and transportation costs in the actual amount charged to its customers. Therefore, utilizing the average tipping fee to calculate cost avoidance represents a conservative estimate.

Surplus Property Reuse on the Rise

Widespread use of the Purchasing Committee (PCOM) listserv in FY12 helped agencies to streamline the surplus property process and save money. Essentially the listserv is an email distribution list that allows agencies to communicate with other state agencies about property that is no longer needed or issue an email to find items that they need to acquire. Typically the exchange of property through the listserv does not cost state agencies any money. In the last quarter of FY12 it is estimated that state agencies saved nearly \$20,000 as a direct result of utilizing the PCOM listserv.

Since FY07 the Office of Administration's (OA) Division of Purchasing (DPMM) and Office of Equal Opportunity (OEO) have been redistributing 3-ring binders to other state agencies by utilizing the PCOM listserv. This has provided other state agencies with the opportunity to save money by not having to purchase new notebooks.

OA/DPMM & OEO Notebook Reuse Stats

Avg. # of notebooks distributed each year = 668
Avg. Annual Estimated Cost Avoided = \$1,324

In order to participate with the Purchasing Committee listserv a state employee must register with the listserv administrator. Since State Surplus Property policies apply to distribution of property via the listserv, it is a good idea for employees who normally handle disposal of property to register. Here is a web link to the registration page <http://lists.mo.gov/mailman/listinfo/purchcomm>

Reclaimed Asphalt Pavement

The Missouri Department of Transportation (MoDOT) began exploring use of reclaimed (recycled) asphalt pavement (RAP) in hot mix asphalt (HMA) in 2003. By 2004 RAP was included with the Standard Specifications for Highway Construction. The first year RAP was used on Missouri's highways resulted in 15,000 tons of the material being applied. By 2006 45 percent of highway projects utilized RAP and this increased to 70 percent or more of projects by 2008. In 2011 a staggering amount of RAP - 709,000 tons - was used on Missouri's highways.



Ground Asphalt Pavement Loaded into a Dump Truck



Application of Reclaimed Asphalt Pavement in HMA

Since 2006, the price of liquid asphalt has doubled while the average price of asphalt mixture for Missouri's roadways has changed very little. RAP mixtures in place over the last few years appear to be performing at the same level of non-RAP mixtures. The use of RAP is cost-effective and a key strategy to help Missouri deliver a good transportation system.

MoDOT provided the content and photographs for this article.

What Does Purple Have to do with Glass Recycling?

The City of Jefferson partnered with Ripple Glass in Kansas City and launched a glass recycling program late in 2010. This has provided state agencies in the Jefferson City area a glass recycling solution. These distinctive purple containers are placed in three locations around town and resulted in



Uniquely Purple Glass Recycling Container

residents and commercial entities recycling over 136 tons (273,400 pounds) of glass during FY12. The glass is processed into cullet and then used to make fiberglass insulation and new bottles.

Glass Recycling Rules	
Yes	No
∞ Food Containers (all colors)	∞ Windows
∞ Beverage Containers (all colors)	∞ Mirrors
∞ Mason Jars	∞ Cookware
	∞ Dishes



RecycleMania is a competition among colleges and universities in the United States that provides schools with a fun, proactive opportunity to increase awareness about waste prevention and recycling on their campus. Over a 10-week period, schools compete in different contests to see which institution can collect the largest amount of recyclables per capita; the largest amount of total recyclables; the least amount of trash per capita; or have the highest recycling rate.

In addition to the schools placing in the Top 25, the following Missouri schools participated in the 2012 national competition: **Park University; Missouri University of Science & Technology; Missouri State University; Northwest Missouri State University; University of Central Missouri; St. Louis University; Webster University; St. Louis Community College (Central Office, Florissant Valley, Forest Park, Meramec); Maryville University of St. Louis; Fontbonne University, Drury University, Harris-Stowe State University, St. Charles Community College, and Three Rivers Community College.**

The State Recycling Program applauds Missouri's colleges and universities for their participation in the national RecycleMania competition.

(www.recyclemaniacs.org)

Missouri Schools Placing in the Top 25 for RecycleMania Competitions

Grand Champion Competition

University of Missouri - Kansas City (13th)
St. Louis Community College - Wildwood (20th)

Gorilla Competition

University of Missouri - Columbia (21st)
Washington University - St. Louis (23rd)

Waste Minimization Competition

University of Missouri - Kansas City (22nd)

Paper Competition

St. Louis Community College - Wildwood (8th)

FY12 Overview: Recycled Content Procurement

Recycling Program Guidelines for Buying Recycled

The State Recycling Program works with agencies to increase procurement of products containing recycled content. This is commonly referred to as “closing the loop”. Recycling can only be successful if products produced from recyclable materials are then purchased. The State Recycling Program has adopted the Environmental Protection Agency’s (EPA) “**Comprehensive Procurement Guidelines (CPG)**” for recycled content products as a roadmap for the State of Missouri to continue working towards “closing the loop”.

Evaluation Criteria for Products Listed Under CPG:

- Availability of product
- Impact of procurement on the solid waste stream
- Economic and technological feasibility of producing the product
- Other uses of the recovered materials used to produce the product

There are eight categories designated in the CPG. Product categories and individual items in these categories are listed below. **Products identified by the recycling symbol appear in the Missouri Recycled Products Directory** published by the Environmental Improvement and Resources Authority’s Market Development Program. This publication is a good resource for locating recycled products manufactured and distributed in Missouri. Additional information about this directory may be found in the “Recycling Resources” section on p. 22 of this report.

Product Fact Sheets may be found for each of these categories on the internet at the following address:

<http://www.epa.gov/epaoswer/non-hw/procure/factshts.htm>

Comprehensive Procurement Guidelines: Recycled Product Categories

1. Construction Products

-  **Building Insulation**
 - Carpet (polyester)
 - Carpet Cushion
 - Laminated Paperboard
-  **Cement & Concrete Containing**
 - **Coal fly ash**
 - Furnace slag
 - Ground granulated blast
 - Cenospheres
 - Silica fume
- Consolidated & Reprocessed Latex Paint
- Floor Tiles
- Flowable Fill
- Modular Threshold Ramps
- Nonpressure Pipe
-  **Patio Blocks**
 - Railroad Grade Crossing Surfaces
-  **Roofing Materials**
-  **Shower & Restroom Dividers/Partitions**
-  **Structural Fiberboard**

2. Landscaping Products

-  **Compost Made from Yard Trimmings or Food Waste**
 - Garden & Soaker Hoses
-  **Hydraulic Mulch**
 - Lawn & Garden Edging
-  **Plastic Lumber Landscaping Timbers & Posts**

3. Park & Recreation Products

-  **Park Benches & Picnic Tables**
-  **Plastic Fencing**
-  **Playground Equipment**
-  **Playground Surfaces**
 - Running Tracks

4. Paper Products

-  **Commercial/Industrial Sanitary Tissue (paper towels & toilet paper)**
 - Miscellaneous Papers
 - Newsprint
-  **Paperboard & Packaging Products**
-  **Printing & Writing Papers**

5. Nonpaper Office Products

-  **Binders, Clipboards, File Folders, Clip Portfolios, & Presentation Folders**
-  **Office Furniture**
-  **Office Recycling Containers**
-  **Office Waste Receptacles**
 - Plastic Desktop Accessories
 - Plastic Envelopes
 - Plastic Trashbags
-  **Printer Ribbons**
-  **Toner Cartridges**

6. Vehicular Products

- Engine Coolants
- Rebuilt Vehicular Parts
- Re-Refined Lubricating Oils
- Retread Tires

7. Transportation Products

- Channelizers
- Delineators
- Flexible Delineators
- Parking Stops
- Traffic Barricades
- Traffic Cones

8. Miscellaneous Products

-  **Awards & Plaques**
 - Bike Racks
 - Blasting Grit
 - Industrial Drums
 - Manual-Grade Strapping
-  **Mats**
-  **Pallets**
 - Signage
 - Sorbents

State Agencies Close the Loop with Paper Procurement

Paper is the most common recycled product purchased by state agencies. In 1990, RSMo 34.032 established attainment goals for state agencies to purchase certain percentages of products made from post-consumer recovered materials.

FY12 Purchases of Recycled Paper Compared to Virgin Paper					
Product Category	Recycled Paper Purchases	Virgin Paper Purchases	Recycled Paper Purchases as a % of Total Purchases in Product Category		
			FY12	FY11	FY10
Fine Paper Products (office, copy, fax)	\$1,458,021	\$2,253,890	39%	42%	38%
Course Paper Products (napkins, towels, tissues)	\$1,716,684	\$858,096	67%	64%	67%
Forms (continuous & snap out)	\$264,785	\$11,801	96%	98%	95%
Envelopes (Plain or Printed)	\$733,467	\$4,686	99%	97%	88%
Printing by contractors (40% of total charge is attributable to paper - figures appearing in this row represent paper cost only)	\$433,434	\$824,784	34%	23%	44%
Overall Totals	\$4,606,391	\$3,953,257	54%	54%	56%

Environmental Benefits of Buying Recycled Paper

The State of Missouri spent \$1,458,021 on recycled “Fine Paper Products” in FY12. A majority of this paper is printer/copier paper made with 30 percent post-consumer recycled paper. Purchasing this type of recycled paper versus virgin paper translates into the following estimated savings:

-  **9,440 trees**
-  **2,753,467 gallons of water**
-  **23,601 lbs. of air pollution**
-  **1,612,745 kw/hours of electricity**
-  **5.5 billion Btu – enough energy to power 53 homes in Missouri for a year!**

Source: www.recycledproducts.org/calculator.html

FY12 Department Reports for Recycled Content Product Procurement

Non-Paper Recycled Content Procurement (All Figures Reported in Dollars)	Auditor's Office	Treasurer's Office	Agriculture	Conservation	Corrections	Economic Development	Elementary & Secondary Education	Health & Senior Services	Insurance, Financial Inst., Prof. Reg.	Labor & Industrial Relations	Mental Health	Natural Resources	Office of Administration	Public Safety	Revenue	Secretary of State	Social Services	Transportation	TOTALS
Antifreeze														1,973					\$1,973
Batteries- Rechargeable					186						15			124					\$325
Carpet / Construction Materials				7,248			8,758				20,533	1,549	34,636	19,495			38,143		\$130,362
Cardboard Boxes					13,748		2,404	402	240	4,001	523	94		3,780		777		3,045,669	\$115,937
Glass Beads																			\$3,045,669
Printer Cartridges, Remanufactured	3,509		200		126,695			3,779	8,137	1,725	1,600	7,841	830	2,677	90		14,815		\$179,121
Janitorial Supplies				557	165,608	58	23,874		53	16,772	11,301	12,012	2,260	15,105					\$633,735
Metal Products		281			11,925		1,240		2,070		7,007	6,186	2,205	286,194	3,262,249				\$3,579,358
Nursery Supplies												171,078							\$171,078
Office Supplies		6,400			2,000							3,760	544	5,500					\$900,782
Oil, Re-refined													21,087						\$21,087
Playground Supplies											5,273	119,987							\$125,260
Promotional Items								2,580											\$2,580
Remanufactured Furniture																			\$104,935
Refurbished Signs																		207,978	\$207,978
Tires, Retread					1,216													2,245	\$3,461
Vehicle Maintenance Supplies					820														\$820
Total Dollars Spent on Recycled-Content Products in FY12 = \$9,224,461																			

Notes: When adding figures in each row the following needs to be considered. MVE provided procurement figures for **Cardboard Boxes** (\$89,969); **Janitorial Supplies**-plastic bags (\$386,134); and **Remanufactured Furniture** (\$104,935). When adding the figures in each row -- these amounts need to be included in the sum. For additional information on recycled-content products and services from MO Vocational Enterprises see p. 22 of this report. The total for **Remanufactured Printer Cartridges** includes \$7,222.80 of purchases that couldn't be attributed to a particular department. The total for **Office Supplies** includes a cumulative figure of \$888,822 reported by contractors.

II. FY12 Overview: Missouri's State Recycling Fund

Missouri's State Recycling Fund was established by RSMo 34.032 which states that "Proceeds from the sale of recycled materials may be used to offset costs of the recycling program."

Recycling revenues increased 2 percent from FY11 to FY12. This increase resulted in the highest generation of revenues in the MO State Recycling Program's (MSRP) history.

In FY12 the MSRP distributed over 12,000 plastic bags to state agencies. A majority of these were used to collect aluminum cans and plastic bottles with a smaller percentage used for shredded paper. In addition, over 650 recycling containers were provided to state agencies in FY12. About one-third of these are being used for mixed office paper, a smaller percentage for can and bottle recycling and the balance of containers are being used by the Missouri School for the Blind. Other significant purchases made with monies from the State Recycling Fund included fluorescent lamp recycling services; containers for the Department of Revenue's paper recycling program; baler supplies and maintenance; and supplies for in-vessel composters located at Ozark Correctional Center and Northeast Correctional Center.

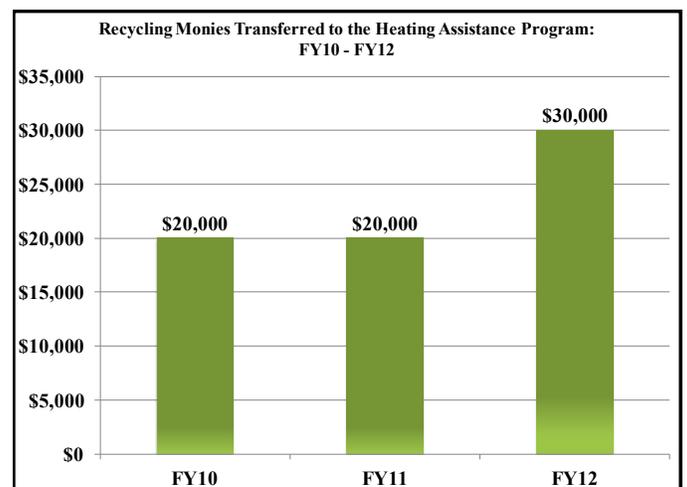
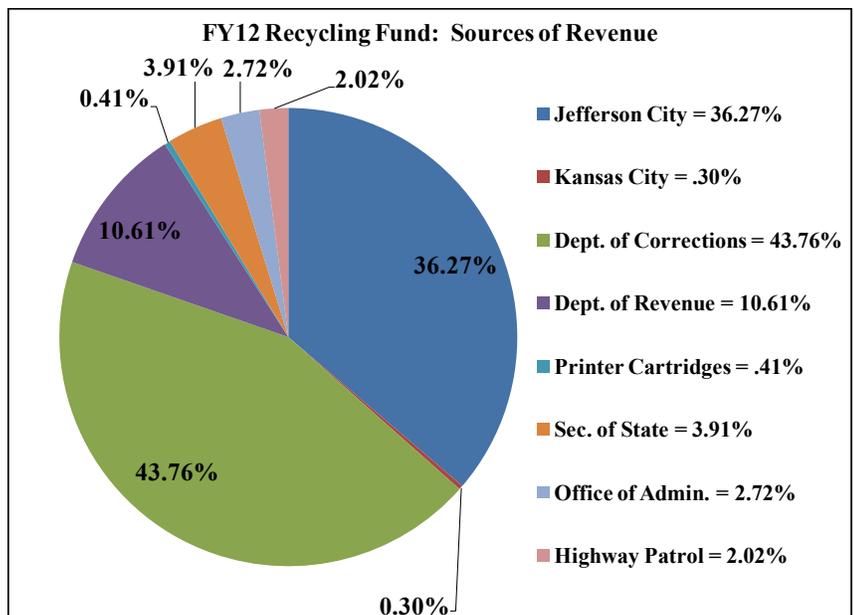
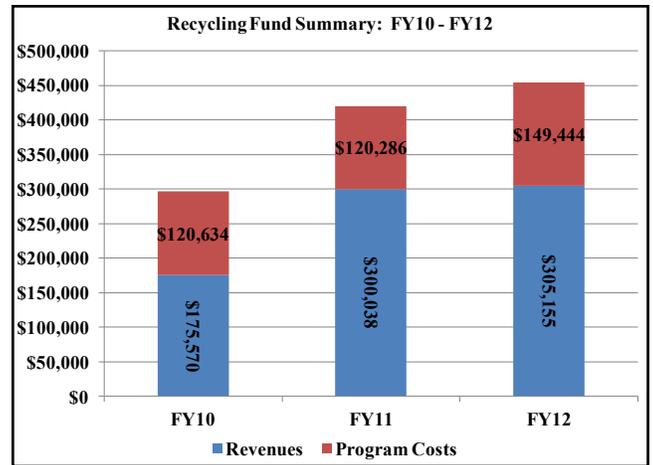
The top three sources of revenue in FY12 were the Department of Corrections (44 percent), the Jefferson City recycling contract (36 percent) and Department of Revenue (11 percent). (see chart to the right)

The Department of Corrections (DOC) spends a significant amount of recycling funds on consumable products such as plastic bags and baling wire for securing bales of recyclable materials. This is due to the high volume of materials that DOC generates and recycles.

Contributions to the Heating Assistance Program (Utilicare)

Excess revenues from the sale of recyclable materials are transferred to the Heating Assistance Program managed by the Department of Social Services pursuant to RSMo 34.032. The Heating Assistance Program (HAP) - also known as Utilicare - provides financial assistance to low-income Missourians for heating their homes during winter months. The MSRP has transferred a total of \$305,000 to the HAP since 1995.

As a result of state employee recycling efforts, the MSRP made a \$30,000 contribution to the HAP in FY12. The \$30,000 transferred to the HAP in FY12 will help approximately 150 households in Missouri to pay their heating bills.



III. State Recycling Program Goals

FY12 Goal

Goal: Establish a recycling services contract for state agencies in the St. Louis area to recycle common office waste products such as paper and cardboard.

Result: A draft request for proposal (RFP) was developed, but was not issued due to additional information that needed to be considered.

FY13 Goal

Goal: Establish a dual-stream recycling service contract for state agencies in the St. Louis area to recover common office waste products. The contract will provide services for the counties of Jefferson, St. Charles, St. Louis, and City of St. Louis. In this scenario, dual-stream recycling means mixed paper will be kept separate from other recyclable materials such as cardboard, plastic, and tin.

Long Time Recycling Committee Member Retires



Kevin Wideman

For the past 18 years Kevin Wideman has served on the Missouri Interagency Recycling Committee (MIRC) as the representative for MoDOT. Kevin was one of the original MIRC members when the committee was formed in 1994. His work on the MIRC has helped to keep MoDOT informed about recycling initiatives and has benefited his agency by reducing the amount of waste generated. Much of MoDOT's recycling infrastructure in the Jefferson City area is a direct result of Kevin taking the lead to ensure that MoDOT offices had the equipment needed to make recycling simple and convenient. Kevin also regularly contributed to Earth Day by assisting with recycling collection and more recently the annual Zero Waste Challenge. Other agencies represented on the MIRC have benefited from Kevin's expertise with universal and hazardous waste regulations. This is a highly technical field and Kevin excels in his ability to explain the rules in a way that is understandable to the layperson.

The Missouri State Recycling Program thanks Kevin for his many years of service to promote stewardship and protect Missouri's resources.

IV. Recycling Resources

Environmental Improvement and Energy Resources Authority / Market Development Program Missouri Department of Natural Resources

Internet: <http://www.dnr.mo.gov/eiera/mo-market-dev-program.htm>

Email: eiera@dnr.mo.gov

Phone: 573-751-4919

The **Missouri Recycled Products Directory** is published by the Market Development Program. An excellent resource for finding Missouri based businesses that manufacture or distribute recycled-content products. The directory is available online at <http://www.dnr.mo.gov/eiera/mmdp-recycled-products-directory.htm>

Missouri State Recycling Program

Office of Administration

Division of Purchasing & Materials Management

Internet: <http://www.oa.mo.gov/purch/recypro.html>

Email: recycling@oa.mo.gov

Phone: 573-751-2387

The Missouri State Recycling Program (MSRP) works with state agencies to increase purchases of recycled content products, reduce their waste stream and increase collection of materials for recycling. The MSRP web page is a good resource for state contracts that offer recycled content products as well as recycling services.

Solid Waste Management Program

Missouri Department of Natural Resources

Internet: <http://www.dnr.mo.gov/env/swmp/index.html>

Email: swmp@dnr.mo.gov

Phone: 800-361-4827 or 573-751-5401

The Solid Waste Management Program (SWMP) works with citizens, businesses, industry, and government to continue increasing material reuse and recycling. The SWMP web page is an excellent resource for information dealing with all aspects of solid waste management in Missouri.

Missouri Vocational Enterprises (MVE)

Missouri Department of Corrections

Internet: <http://www.doc.missouri.gov/mve>

Phone: 800-392-8486 or 573-751-6663

The Department of Corrections vocational training program offers the following products and services that meet “buy recycled” criteria. MVE products and services are only available to state agencies and other tax-supported entities.

MVE Recycling/Remanufacturing/ Refurbishing Services

- Tire Recycling Service
573-635-3825
- Toner Cartridge Refill Service
573-751-3224 ext. 1260
- Furniture & Office Panel (cubicle) Refurbishing
573-751-6663 or 800-392-8486

MVE Recycled-Content Products

- Cardboard boxes: 65 percent post-consumer content
- Plastic bags: 30 percent recycled material
- Metal products: 25 percent post-consumer content
- Toilet paper: 40 percent recycled material
- Envelopes: 30 percent post-consumer content