SOLID WASTE MANAGEMENT PLAN

2014

RILEY COUNTY, KANSAS

SOLID WASTE MANAGEMENT PLAN

RILEY COUNTY BOARD OF COMMISSIONERS

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APPROVED BY THE SOLID WASTE MANAGEMENT COMMITTEE
5/1/2014

ADOPTED BY THE BOARD OF COUNTY COMMISSIONERS
6/5/2014

ACKNOWLEDGMENTS

The Riley County Board of Commissioners wishes to recognize the efforts of all of the participants whose contributions made this Plan possible.

Special thanks are given to the Riley County Solid Waste Management Committee and its subcommittees.

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GLOSSARY

The following terms used in the Riley County Solid Waste Management Plan are defined below:

Acceptable Waste: Garbage, refuse, and other mixed municipal solid waste generated by residential, commercial and community sources but not including Unacceptable Waste.

Air Curtain Burning: Wood combustion process which uses a curtain of air above the burn pile to control the smoke produced. The high volume of air causes over oxygenation of the fire and the high velocity airflow over the combustion chamber entraps particulates (smoke), which then completes combustion in the combustion chamber, thus limiting emissions and smoke.

Biosolids: Treated sludge which are the byproduct of the treatment of domestic wastewater in a wastewater treatment plant.

Closure: The physical act of securing, covering, and otherwise closing a terminated solid waste landfill, in accordance with all applicable regulations, to mitigate and abate environmental impacts and public health and safety hazards and nuisances, as well as to anticipate and resolve future problems.

Composting: The biologically controlled microbial decomposition of selected organic solid waste, resulting in an innocuous, stable, humus product which can than be used as a soil amendment.

Consumer Electronics Waste: Waste (e-waste) which results from all types of obsolete, unused or unwanted electronic equipment.

Construction/Demolition Waste: Concrete, blacktop, bricks, stone facing, concrete block, stucco, glass, structural metal and wood from demolished structures and other inert waste materials as may be approved by the Kansas Department of Health and Environment.

Enterprise Fund: A proprietary fund; an accounting method and funding mechanism for ventures providing goods and services to the public on a continuing basis, financed by revenues produced and user charges.

Hazardous Waste: Wastes that pose a substantial danger immediately or over a period of time to human, plant, or animal life. A waste is classified as hazardous if it exhibits any of the following characteristics:

Ignitability
Corrosivity
Reactivity
Toxicity

These terms shall be defined as they are defined in the Federal Register of 19 May 1980 pg. 33, 121-122.

Household Hazardous Waste: Hazardous wastes, as defined above, which are exempt from the regulations governing the storage, transport, and disposal of hazardous waste, due to the minute volumes generated by a single household.

Interlocal Agreement: A legally binding agreement between two or more governments that specifies rights, responsibilities, and obligations of the respective governments.

Materials Recovery Facility: A facility that processes recyclables only. Processing may include separation, shredding, crushing, condensing, baling and other methods required to transport and market materials.

Municipal Solid Waste (MSW): Mixed garbage, refuse, rubbish, trash and other solid waste from residential, commercial, industrial, and community generators which is collected in aggregate, but does not include auto hulks, street sweepings, ash, construction and demolition debris, household hazardous waste, mining wastes, certain types of sludge, tree and agricultural wastes, tires, and other materials collected, processed, and disposed of as separate waste streams.

Post-Closure/Post-Closure Care: The physical act of long term monitoring and maintenance of a solid waste landfill for a specified number of years after closure.

Processed Mixed Municipal Solid Waste: Waste which has been collected and transported to a facility where it is subject to one or more processes including, but not limited to: separation, classification, densification, size reduction, incineration and/or biological treatment.

Recyclable Materials: Materials that can readily be separated and converted into raw materials from which new products can be manufactured and sold. Title implies that a reliable market exists for the material.

Recycling Rate: The percentage of a municipal solid waste stream which is recycled by the community. A further explanation is available in the Recycling (Chapter 6) section.

Residential Solid Waste: Garbage, refuse, rubbish, trash and other solid waste resulting from household activities.

Resource Recovery: Reclaiming, through the processing of municipal solid waste, materials, substances, or other products contained within or derived from the solid waste for sale or reuse.

Reuse: A secondary use of a material in its present form.

Riley County Solid Waste Management Committee: A committee acting in an advisory capacity to Riley County on solid waste issues as required by Kansas Statutes (KSA-3405). The Riley County Board of Commissioners appoints members.

Riley County Solid Waste Fund: The fund supported by landfill gate fees, general tax levies, or other sources of monies, from which all activities relating to solid waste planning, recycling, and disposal are funded.

Sanitary Landfill: A licensed and approved site for the disposal of municipal solid waste designed and operated in accordance with a plan approved by the Kansas Department of Health and Environment and local government.

Solid Waste Facility: An intermediate waste facility to which mixed municipal solid waste, recyclables or other materials are temporarily deposited before being transported to a processing facility or final disposal site.

Source Separation: The recycling process in which recyclable materials are separated before entering the waste stream.

Special Wastes: A non-hazardous solid waste that is not mixed municipal solid waste and requires management other than that normally required for mixed municipal solid waste.

Unacceptable Waste: Waste which would likely pose a threat to health or safety, may cause damage to a solid waste management facility, or will adversely affect the operation of a solid waste management facility.

Waste Reduction: Activities employed by generators of solid waste which will actually and measurably reduce the amount of solid waste generated per person or per household.

Waste-to-Energy: The process of converting solid waste to thermal energy with combustion.

Waste Stream: The sum of waste to be disposed of by all generators.

White Goods: Major appliances, or domestic appliances, which accomplish some routine housekeeping task whether in a household, institutional, commercial or industrial setting.

Yard Waste: Materials normally generated in the maintenance of residential gardens and yards, and multifamily residential, commercial, industrial or public grounds maintenance, which are generally consist of leaves, grass clippings, weeds, garden wastes, trees and brush.

EXECUTIVE SUMMARY

RILEY COUNTY
SOLID WASTE MANAGEMENT PLAN

EXECUTIVE SUMMARY

INTRODUCTION

This plan is required by Kansas Statutes and serves as a guide for decision-making regarding the management of solid wastes in Riley County. The plan is divided into 12 chapters covering areas of solid waste management. Following is a brief synopsis of our goal for each area listed.

EXISTING SOLID WASTE MANAGEMENT

This chapter describes the current system in terms of its programs that are being implemented and the goals of those programs. Also included is the amount of waste being generated by various categories and per capita generation estimates. At this time, the Riley County Landfill has been permanently closed. Solid waste is being accepted at a solid waste facility and is being transported to a privately owned landfill in another county.

PROGRAM GOALS, OBJECTIVES AND POLICIES

PROGRAM GOAL:

- To develop a comprehensive solid waste management system which:
    - Protects public health and safety
    - Preserves and protects the environment and natural resources
    - Provides cost-effective methods of processing and disposal

PROGRAM OBJECTIVE:

Minimize landfill use in or by Riley County through the use of sound management methods including waste reduction, source separation recycling, and diversion of yard waste.

PROGRAM POLICIES:

The Riley County Solid Waste Management Plan will serve as a guide for management of all the municipal solid waste generated within Riley County.

The Riley County Solid Waste Management Plan will emphasize a balanced and integrated solid waste management system which will be based on the following hierarchy of components in order of priority:

1) Waste Reduction
2) Recycling
3) Yard Waste Processing
4) Landfilling
5) Waste-To-Energy

WASTE REDUCTION

GOAL:

To reduce the per capita volume of solid waste generated in Riley County to no more than 3 pounds per person per day by the year 2020.

OBJECTIVES:

- To decrease the purchases of non-durable and disposable items.
- To increase the reuse of items as many times as possible before discarding.
- To increase purchases of quality items which last longer.
- To increase purchases of items in bulk or items which do not have unnecessary packaging.
- To encourage recycling

Please refer to Chapter 4 for the education activities pertaining to waste reduction.

RECYCLING

GOAL:

To recycle as much of our solid waste as possible but achieve a recycling rate of at least 22% of the entire waste stream by December 31, 2020.

OBJECTIVES:

- To educate the general public on the importance of recycling, what to recycle, how to recycle, and where to recycle in Riley County.
- To promote and encourage source separation of recyclables as the most efficient and cost effective method of recycling.
- To develop community-wide curbside recycling programs.
- To maintain and improve the availability of drop-off recycling opportunities.
- To establish policies which promote the development of recycling markets and the creation of new products from recycled materials.
- To identify and promote the recycling of new commodities.
- To develop a program that is convenient for consumer participation.
- To have the greatest waste generators pay the greatest portion of the solid waste management costs.

Please refer to Chapter 4 for the education activities pertaining to recycling.

YARD WASTE PROCESSING

GOAL:

To divert all yard waste from the Riley County Transfer Station municipal solid waste stream to an appropriate beneficial use or location.

OBJECTIVES:

- To reduce the amount of yard waste generated.
- To encourage the use of yard waste at the point of generation.
- To utilize all yard waste collected in an economical and productive manner.
- To facilitate no cost use of and access to the voluntary composting site.
- To produce products from yard waste that can be reused as a resource to the community.

Please refer to Chapter 4 for the education activities pertaining to yard waste.

LANDFILLING

GOAL:

To provide for environmentally safe, economical, and politically acceptable landfilling of the least amount of Riley County solid waste as possible.

OBJECTIVES:

- To minimize disposal of Riley County municipal solid waste and process residuals in landfills.
- To limit landfilled material to non-recyclable, non-reusable municipal solid waste.
- To dispose of waste remaining after all reduction programs in a regional landfill, either public or private, that is within an economical distance, environmentally safe, politically acceptable and in conformance with all applicable regulations and standards.

ACTION STATEMENT

The Board of County Commissioners may adopt a resolution prohibiting open dumping as well as burning of household trash.

Please refer to Chapter 4 for the education activities pertaining to the landfill.

WASTE-TO-ENERGY

FUTURE ACTIVITES:

At this time, no future activities are planned either for assessment and/or technical or economic evaluation of Waste to Energy programs.

SOLID WASTE FACILITY

GOAL:

Continue to maintain a Solid Waste Facility to process Riley County's present and future solid waste in an economical manner.

OBJECTIVES:

- To maintain a well-designed facility.
- To maintain an attractive facility that will be an asset to the community.
- To maintain a facility of adequate size and throughput capacity.
- To maintain all necessary utilities to the facility to ensure a safe, efficient, and sanitary operation.
- To have all Riley County municipal solid waste delivered to the permanent solid waste facility for processing.
- To allow and encourage regional use of the Riley County Solid Waste Facility.

Please refer to Chapter 4 for the education activities pertaining to the solid waste facility.

HOUSEHOLD HAZARDOUS WASTE

GOAL:

To reduce the volume and ensure correct management of household hazardous waste.

OBJECTIVES:

- To increase the awareness of proper disposal methods of household hazardous waste.
- To increase the amount of household hazardous waste removed from the waste stream for proper disposal.
- To provide sites for proper disposal of any household hazardous waste.

Please refer to Chapter 4 for the education activities pertaining to household hazardous waste.

SPECIAL WASTE

GOAL:

To reduce the volume of and ensure correct management of special wastes.

OBJECTIVES:

- To reduce the amount of special waste generated.
- To recycle or reuse as much special waste as possible.
- To landfill special wastes as a last resort and in an environmentally acceptable manner.

Please refer to Chapter 4 for the education activities pertaining to special waste.

INTRODUCTION

Chapter 1

CHAPTER 1

INTRODUCTION

PURPOSE

The purpose of this Plan is to communicate the policies, functions, activities, and facilities for collection, processing and disposal of solid waste in Riley County. This Plan, and its subsequent revisions, will serve as a guide for solid waste management as the County meets legislative mandates and strives to manage solid waste generated within its borders in a manner which is sustainable, environmentally sound and fiscally responsible.

AUTHORIZATION/LEGISLATION

This report was prepared pursuant to K.S.A. 65-3405.

PUBLIC INPUT AND REVIEW

Riley County has established its Solid Waste Management Committee, to involve citizens and local officials in the preparation and implementation of the Riley County Solid Waste Management Plan. The Committee has reviewed and provided comments regarding this 2014 version of the plan. It was the policy of the Committee to meet on a regular basis for purposes of review, public information, and the taking of appropriate action. Following the completion of proposed plan revisions, copies were given to all Committee members for review and comment. Upon completion of the revisions and a new version of the plan, a public hearing was held to consider adoption of the 2014 plan. The plan was accepted by the Riley County Solid Waste Management Committee at a special meeting and forwarded to the Riley County Board of Commissioners for their consideration and adoption at an advertised public hearing. Upon adoption by the Board of County Commissioners, the plan was forwarded to the Kansas Department of Health and Environment for their review and approval in accordance with Kansas statutes.

PLANNING AREA

GEOGRAPHY

Riley County is located in northeastern Kansas in the fifth tier of counties west of the Missouri River and the second tier of counties south of the Nebraska-Kansas

border. The eastern boundary of the County is approximately 100 miles west of the Missouri-Kansas state line and the northern boundary is approximately 30 miles south of the Nebraska-Kansas state line. Riley County is bounded on the north by Washington and Marshall Counties, on the east by Pottawatomie County on the south by Wabaunsee and Geary Counties, and on the west by Geary and Clay Counties.

The regional location of Riley County is illustrated in **FIGURE 1** on the following page. Riley County encompasses 611 square miles, or 390,824 acres. About 70 percent of the land area is used for farming. Slightly more than 50 percent of the farmland is used for range, and nearly 40 percent is used for crops. Woodland, farmsteads, and other farm uses account for nearly 10 percent. Native range land consists mostly of mid and tall grasses. Annual precipitation averages 33 inches, and temperature averages 67 degrees.

Riley County is divided into 14 political townships and 5 incorporated cities as shown in **FIGURE 2**. Manhattan, the County seat, is the largest city with an estimated 2012 population of 56069. The U.S. Bureau of the Census estimated the population of the County at 75,508 in 2012. The population is projected to increase to 80,580 by the year 2020.

The stable economy of the County is based on farming and on services for Kansas State University and the Fort Riley Military Reservation. Kansas State University employs about 30% of the work force with most of the dollars generated from the University coming from outside of the County.

Tuttle Creek Lake on the Blue River northeast of Manhattan and 60 miles west of Topeka is a key reservoir in the Kansas River system of flood control projects. Its dam is an earth and rock fill embankment nearly a mile and a half long. The lake, 1075 feet above sea level, has 112 miles of shoreline and is the second largest body of water in Kansas.

Riley County adopted a new Comprehensive Plan in 2009 that provided recommendations for future land use and public services and facilities. This plan was used to update the Solid Waste Management Plan.

Figure 1: Location of Riley County within Kansas

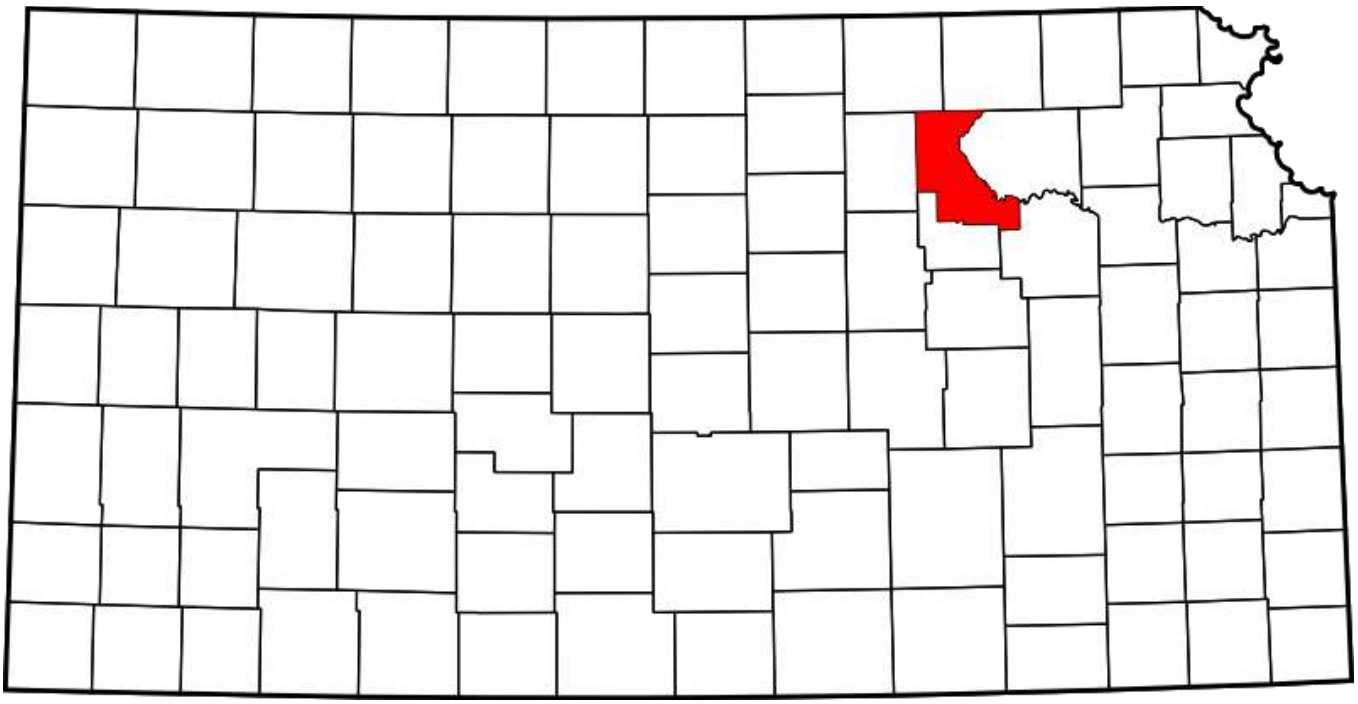
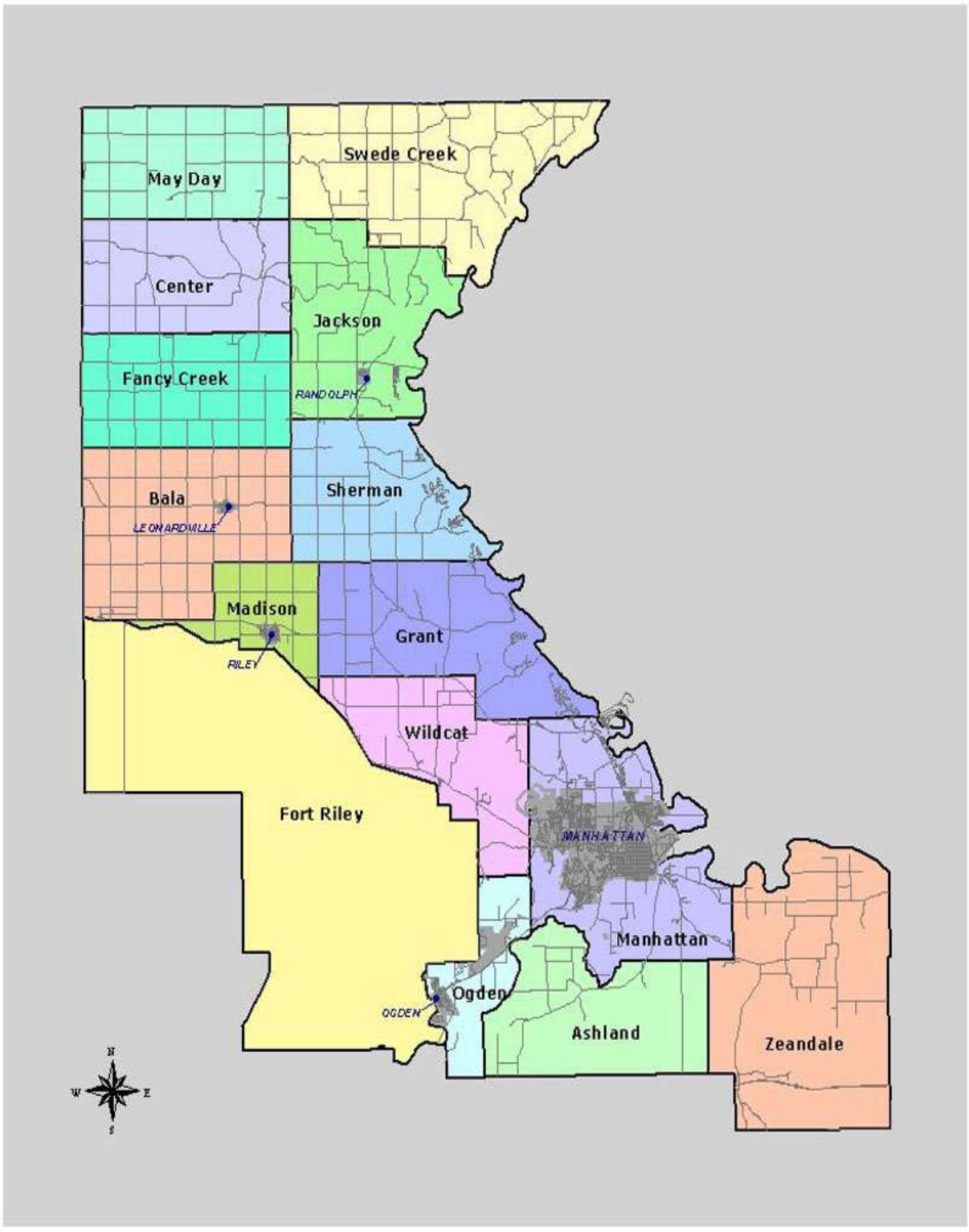


Figure 2: Political Townships within Riley County



EXISTING SOLID WASTE MANAGEMENT

Chapter 2

CHAPTER 2

EXISTING SOLID WASTE MANAGEMENT

WASTE MANAGEMENT ORGANIZATION

In Riley County, the responsibility for solid waste management resides with the Board of County Commissioners, assisted by the Riley County Solid Waste Management Committee and the Riley County Public Works Department staff.

WASTE GENERATION

The Riley County Public Works Department estimates the total amount of municipal solid waste accepted at the Riley County Landfill and Solid Waste Management Facility for the years 2003-2013 ranged from 120 tons on a daily basis to 159 tons on a daily basis (Figure 3).

For the years 2010 and 2012, detailed records indicate that the Riley County Solid Waste Management Facility has received an average of 124.31 tons/day. Using the estimated population of Riley County for those same years, the waste generation rate per capita is estimated to be 3.40 pounds per person per day. This generation rate will be utilized in the development of this Plan (Figure 4).

Figure 3: Average Daily Tonnage on an Annual Basis†
†Municipal Solid Waste exchanged through the Riley County Transfer Station

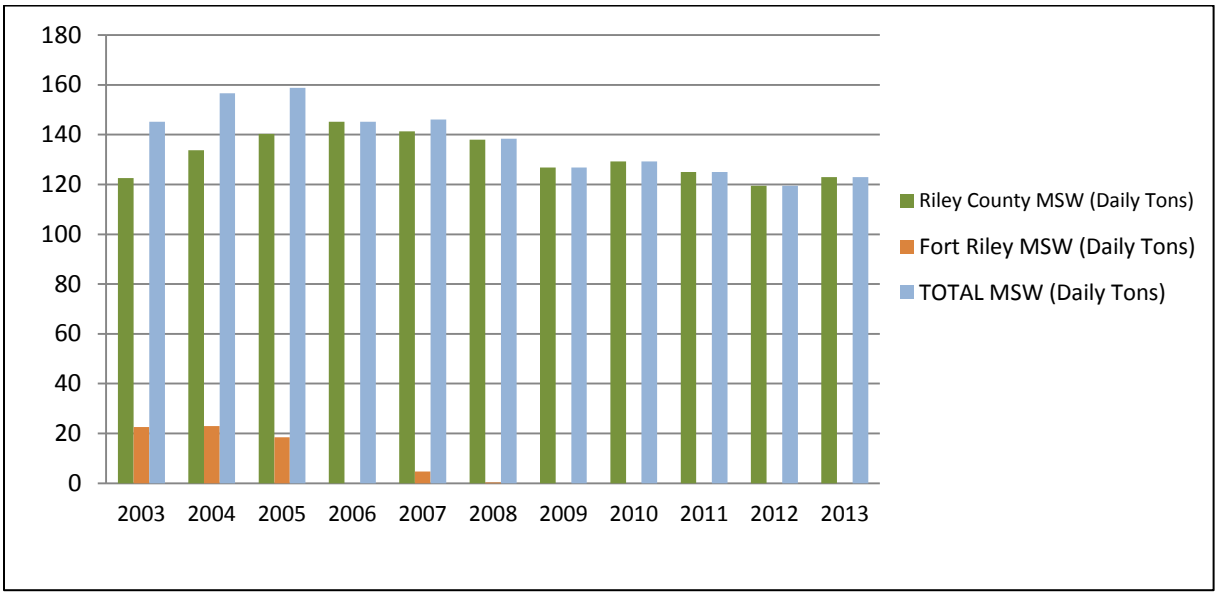


Figure 4: Waste Generation Rate Table

Year	Material	Population of Riley Co	Tons (Waste)	Tons/ Person/Yr (Waste)	Lbs/Person /Day (Waste)
2010	MSW	71,115	47,149	0.66	3.63
2012	MSW	75,508	43,596	0.57	3.12
Average	MSW	73,312	45,373	0.62	3.40

*solid waste facility only

WASTE CHARACTERIZATION

Solid waste in Riley County is typical of that found in other similar jurisdictions throughout the United States. A Solid Waste Characterization Study for Riley County in May of 1999 by Kansas State University estimated the percentages of various materials in the solid waste stream. These percentages are listed in TABLE 1 below:

Table 1: Materials in Solid Waste Stream By Percent

MATERIALS	PERCENT
Paper and paperboard	34.1%
Glass	3.4%
Ferrous metals	2.8%
Aluminum	.5%
Other nonferrous metals	.4%
Other inorganic	1.5%
Plastics	8.9%
Food wastes	10.7%
Yard wastes	5%
Other organics	20.3%
Other wastes	12.1%
TOTAL	100%

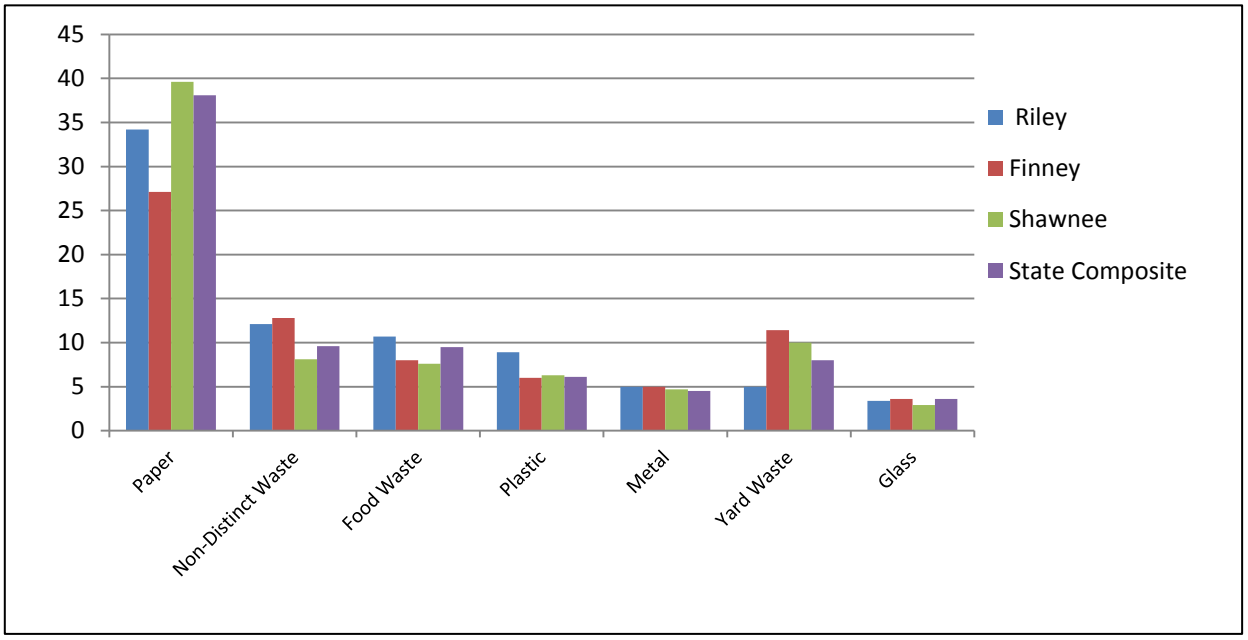
SOURCE: Derived from figures in Riley County Waste Characterization Study, 1999, William M. Eberle and Richard G. Nelson.

STATE WASTE GENERATION COMPARISON

Efforts were made at the onset of the Solid Waste Management Plan revision process in order to ensure the most recent waste characterization study waste generation rates are still applicable. According to procedures made available through the 2005 State of Kansas Waste Characterization Study, the county of Riley was analyzed alongside counties of similar demographics in order to create a general waste characterization.

According to the procedure within the 2005 Kansas-wide document, Riley County is comparable in demographics to the counties of Finney and Shawnee. These demographics were reviewed and analyzed specifically in regard to the procedures established by the State's characterization study and then statistically compared to the most recent county waste characterization study of 1999. The resulting percentages (Figure 5 below) of waste types found within the municipal solid waste stream seem to support that the 1999 county waste characterization study for Riley County is still quite valid when compared to the demographically similar counties of Finney and Shawnee.

Figure 5: Waste Stream Comparisons by Component



SOURCE: 2005 State of Kansas Waste Characterization Study

WASTE COLLECTION

Solid waste collection in Riley County is done by the private sector. Licensing requirements for haulers varies with the municipality.

Cities with haulers operating in their jurisdiction are the Cities of Manhattan, Ogden, Randolph, Riley and Leonardville. Trash pickup at the home, commonly referred to as curbside pickup, is also provided to numerous developments and farms outside of city limits. The Riley County Solid Waste Facility, located at the closed Riley County Sanitary Landfill, is the designated site for waste collected in Riley County, although other State approved area landfills are utilized by private haulers from time to time. While there is voluntary separation of recyclables in Riley County, there is no common coordinated collection, marketing, or reporting program for recyclables. Currently some haulers offer curbside recycling.

WASTE DISPOSAL METHODS

The primary method of solid waste disposal historically has been the sanitary landfill. Landfilling continues to be the main disposal method, although the use of alternative disposal methods continues to increase. Interest in alternative disposal methods was sparked by the 1991 adoption of new federal regulations regarding the operation of landfills. These regulations have dramatically increased the cost of landfill operations.

Waste placed in sanitary landfills is called mixed municipal solid waste (MSW), and is defined as garbage, refuse and other solid waste from residential, commercial, industrial, and community activities which is generated and collected in aggregate. Hazardous wastes, liquids, sludge, raw sewage, some special wastes, and industrial wastes that have not been tested and specifically approved for disposal by the Kansas Department of Health and Environment and the local government are prohibited from disposal in sanitary landfills.

A sanitary landfill accepts MSW for disposal in accordance with a plan of operation. The intent of the sanitary landfill is to confine dumped waste to the smallest practical area, to reduce it to the smallest volume, and to cover it with an adequate layer of earth at the conclusion of each day's operation.

Currently the majority of MSW generated in Riley County is transported to one State permitted facility within the County, which is the Riley County Solid Waste Facility located adjacent to the closed Riley County Sanitary Landfill. Riley County MSW is transported periodically by private haulers to surrounding county transfer stations when the difference in disposal charges is great enough or there is more convenience for the hauler due to the proximity of other transfer stations.

RILEY COUNTY SANITARY LANDFILL AND SOLID WASTE FACILITY

The Riley County Sanitary Landfill and Solid Waste Facility are located in Section 36, Township 10 South, Range 7 East (see map of solid waste facility in the appendix). The owner of the land of the closed Sanitary Landfill site is the City of Manhattan. Riley County is responsible for continued monitoring and closure of the landfill. Riley County decided to close the landfill in 1987 with the cooperation of and under the authority of the Kansas Department of Health and Environment. Official closure occurred on December 31, 1991 per the plan contained in the "Riley County Landfill Corrective Closure Plan" dated February 1991.

MSW is now taken to the Riley County Solid Waste Facility only. The site of the Solid Waste Facility is owned by Riley County who is responsible for its operation. Rates and charges for the solid waste facility are determined by the Board of County Commissioners and are adjusted periodically in order to cover operational costs. Currently the MSW is transported from the solid waste facility to N.R. Hamm Quarry in Perry, Kansas located near Lawrence (see map of quarry in appendix). The Riley County Solid Waste Facility accepts all types of MSW. All State-regulated special wastes are prohibited. Other special wastes such as Household Hazardous Waste and e-waste are diverted away from the solid waste facility to other facilities whenever possible.

YARD WASTE

Yard waste includes grass clippings, leaves, and tree and brush waste. Riley County accepts, without charge, all types of non-commercial yard waste at its yard waste composting site and tree and brush waste site. There is a charge for disposal of commercial tree and brush waste. Grass and leaves are composted under a composting permit. Tree and brush waste coming in already chipped or shredded is made available to the public. Other tree and brush material is placed in a separate area where the public can cut firewood. The remaining material is ground and hauled to an approved yard waste site in Topeka at the County's expense. The cities of Leonardville, Ogden, Randolph, and Riley have approved sites for the disposal of trees and brush. Most of the materials are burned at these sites. The Ogden site accepts grass and leaves which are composted at a permitted site.

CONSTRUCTION/DEMOLITION LANDFILLS

In addition to the Riley County Landfill, construction/demolition wastes such as concrete, asphalt, brick, stone facing, concrete block, stucco, glass, sheetrock, plaster and lath, insulation, structural metal and wood from demolished structures, and other inert waste materials are disposed of in one privately owned site approved by the Kansas Department of Health and Environment for construction/demolition wastes only. This site is listed in the table below. There are also several other permitted sites in neighboring counties.

CONSTRUCTION/DEMOLITION LANDFILL IN RILEY COUNTY

LOCATION	OWNER	KDHE PERMIT NO.
NE 1\4, Section 33, T10S, R9E	Bayer Construction Co.	929

HOUSEHOLD HAZARDOUS WASTE FACILITY

One part of the waste stream going to sanitary landfills which is identifiable and is of concern is what is commonly referred to as Household Hazardous Waste. This waste type consists of household quantities of toxic materials including solvents, paints, pesticides, fertilizers, acids and flammable liquids. This includes items such as mothballs, fingernail polish and remover, oven and toilet cleaners, photographic chemicals, drain cleaners, floor and furniture polish, pool chemicals, houseplant insecticides, roach, ant, and mouse poisons, paint thinners, furniture strippers, stains/finishes, brake fluids, antifreeze, transmission fluids, batteries (car and household), and used oil and oil filters.

These substances are exempt now from regulation because of the small quantities produced by a single generator, i.e. a household. However, in aggregate, they do present a formidable problem. Currently a portion of these materials is being diverted from the Solid Waste Facility. Citizens are encouraged to take these items to the Riley County Household Hazardous Waste Collection Center (6245 Tuttle Creek Blvd., Manhattan, Kansas) for utilization, recycling, or proper disposal in an EPA licensed facility (see map of HHW collection center in appendix). The operation of this facility is covered by the General Fund. For further information on this facility please refer to Chapter 11.

CURRENT SOLID WASTE PLANNING STATUS

Planning activity has taken place in every facet of solid waste management in Riley County. This includes waste reduction, source separation of recyclables and yard waste, composting of yard waste, and land disposal.

The County's approach to solid waste planning has been to utilize, as much as possible, the citizen advisory structure that has been established for this purpose. This includes meetings of the Riley County Solid Waste Management Committee and its subcommittees. These subcommittees in the past have dealt with: (1) Intergovernmental cooperation; (2) Recycling; (3) Citizen participation, education, and awareness; (4) Composting; and (5) Technical issues. A separate task force also was established for the development of the household hazardous waste program. More recently, the subcommittees were (1) Recycling; (2) Waste Reduction; (3) Household Hazardous Waste; (4) Special Wastes; (5) Education; & (6) Yard Waste.

It should be emphasized this Plan is not a static document but a continually evolving process. At this writing, meetings are being conducted, discussions are taking place, and proposals are being formulated. The intent of this management plan is to continue the public involvement process as long as it is warranted and to continue to update the Plan as formal decisions regarding solid waste management are made.

The Plan process also must include and build upon the planning efforts of the past. To date, three previous Solid Waste Management Plan documents have been adopted. These are:

1. Solid Waste Management Plan, Riley County, Kansas. Prepared by Dr. Robert W. Newsome. May 10, 1973.

2. Big Lakes Regional Council Area Solid Waste Study. Prepared by Franklin Associates, LTD. July 1989.

3. Solid Waste Management Plan, Riley County, Kansas. Approved by Riley County Solid Waste Management Committee on May 4, 1992. Adopted by Riley County Board of Commissioners on June 18, 1992 and all subsequent revisions and updates.

PROGRAM GOALS, OBJECTIVES AND POLICIES

Chapter 3

CHAPTER 3

PROGRAM GOALS, OBJECTIVES AND POLICIES

INTRODUCTION

Riley County has been actively revising its solid waste management system since 1973 when it developed the first Countywide Solid Waste Management Plan. Since that time, solid waste management systems have progressed from use of landfills only to integrated systems that include waste reduction, source separation of yard waste and recyclables, processing of separated yard waste, marketing of recovered materials, and disposal of the residue. This integrated approach to solid waste management has become more and more accepted and commonplace and is reflected in the policy statements below:

PROGRAM GOAL

To develop a comprehensive solid waste management system which:

- Protects public health and safety
- Preserves and protects the environment and natural resources
- Provides cost-effective methods of processing and disposal

PROGRAM OBJECTIVE

Minimize landfill use in or by Riley County through the use of sound management methods including waste reduction, source separation recycling, and diverting yard waste.

PROGRAM POLICIES

The Riley County Solid Waste Management Plan will serve as a guide for management of all the municipal solid waste generated within Riley County.

The Riley County Solid Waste Management Plan will emphasize a balanced and integrated solid waste management system which will be based on the following hierarchy of components in descending order of priority:

EDUCATION ***(Chapter 4)***
WASTE REDUCTION ***(Chapter 5)***
RECYCLING ***(Chapter 6)***
YARD WASTE PROCESSING ***(Chapter 7)***
LANDFILLING ***(Chapter 8)***
WASTE-TO-ENERGY ***(Chapter 9)***

EDUCATION

Chapter 4

CHAPTER 4

EDUCATION

INTRODUCTION

Education is the ultimate key to successful solid waste management. The various components of the plan, such as waste reduction and recycling, can only be effective if citizens are aware of these programs and their role in creating a sustainable, healthy environment.

Consumer education must replace years of misinformation about environmental issues. These goals can be met by providing current information and responsible opportunities to consumers. These goals can also be achieved in part through multi-media announcements, informational packets, directories, display booths and school programs.

This chapter has been created to outline the overall, coordinated program for continuing education of the general public on the importance of solid waste management practices. This program will include but is not limited to, the promotion of recycling, general waste stream reduction, proper disposal of household hazardous waste, and collection of eWaste. The Riley County Solid Waste Management Committee urges all local communities to support voluntary reduction activities. Through these varied activities emphasis is placed on making consumers aware of the consequences of their actions through public education tools.

To achieve these goals, Riley County has participated in numerous educational activities. Following is a summary list of these efforts.

Table 2: Solid Waste Educational Activities in Riley County

ACTIVITY	YEAR PERFORMED	ESTIMATED $ SPENT
Conducted curbside recycling pilot program for 1,040 homes in western Manhattan and prepared report	1990-1991	$100
Participated in Clean Your Files Week spearheaded by the City of Manhattan	1990-2003	$0
Developed 3 R's curriculum enrichment package	1992	$500
Developed Clean SWEEP slide-tape show	1992	$500
Developed pamphlets on solid waste issues that are available for the public.	1994	$100
Applied pollution danger logos on storm drains	Ongoing since 1994	$200/yr
Developed library of resource materials available for check out from RC Extension	1995	$200
Purchased earthworm bin for educational purposes with grant from Sustainable Manhattan. Used as a resource for schools	Ongoing since 1998	$24.00/yr
Recycling booth at the Riley County Fair that has educational activities for children and young adults including a contest to win two bicycles.	July 2008	$90 donated for bicycles
Updated and printed Flint Hills Recycling Directory as well as information available via county websites	Biannual	$0/yr (web version only)
Provided technical support and information to interested parties about solid waste issues.	Ongoing	$0
Implemented recycled paper policy in Riley County offices	Ongoing	Slightly higher prices than non rec. paper
Conducted informational media campaign	Varies Annually	$0
Encouraged other governmental agencies and the public to use the Household Hazardous Waste Collection Center	Ongoing	$0
Provided public information materials on solid waste issues at community functions, e.g. Riley County Fair	Ongoing	$20-50/project
Participated in various Earth Day activities, e.g. Participated in program at Sunset Zoo	Annual	$1000
Made presentations to community groups and schools	Available at Request	$0
Developed educational website at www.rileycountyks.gov	Ongoing	$0

The following materials and many more are available to the public at the Riley County Extension Office and the Riley County Health Department: brochures relating to leaf composting, yard waste, used tires, and other topics; HHW ingredient wheel explaining the materials; brochures describing water quality; and materials promoting environmentally friendly items.

The internet can be a powerful tool for education. The average browser can find information concerning any number of topics with regard to waste management in as much depth as they desire. Riley County solid waste information on the county website is regularly updated with regard to services and facilities for waste management available in the County.

Under the education sub-committee *policy/action plans*, the following points should be conveyed to the public:

- Decrease the use of non-durable/disposable items
- Increase in the use and maintenance of durable equipment and supplies
- Increase the reuse of products before discarding
- Reduce the use of hazardous materials in products
- Increase the use or manufacture of minimal and reusable packaging
- Implement the source separation of recyclables
- Increase awareness of changes within the waste stream of the community such as medical wastes and consumer electronics wastes

Solid Waste Management Action/Policy Plan

Education

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1	Maintain informational brochures on solid waste topics	RC Extension Service	Ongoing	$0	
2	Maintain 3 R's curriculum enrichment packet	RC Extension Service	Ongoing	$0	
3	Maintain resource materials available for check out from Riley County Extension	RC Extension Service	Ongoing	$0	
4	Provide clearinghouse for recycling information	RC Public Works RC Planning & Development	Ongoing	$0	
5	Update and publish Flint Hills Recycling Directory on website	RC Planning & Development	Biannual	$0	
7	Maintain Solid Waste page as part of RC website	RC Public Works	Ongoing	$0	
TOTAL				$0	

WASTE REDUCTION

Chapter 5

CHAPTER 5

WASTE REDUCTION

INTRODUCTION

Recycling saves energy and reduces the amount of trash sent to a landfill, but it is only part of the ***waste management*** hierarchy. Waste not created in the first place is much better since it never has to be handled, stored, or collected in any way.

Waste reduction can be accomplished in many ways. Reducing the volume or toxicity of waste can be done at any stage of a product's life cycle, from the product or package design, through the use of the product by consumers. It requires changes in purchasing and product use habits, as well as changes in the way we think about what we want and what we need.

Waste reduction, otherwise known as waste prevention or source reduction, may be defined as "the design, manufacture, purchase, or use of materials or products to reduce the amount or toxicity of what is thrown out". Waste reduction may be further defined as activities employed by generators which actually and measurably reduce the amount of solid waste generated per person or per household. It also may include activities such as backyard mulching and composting of yard wastes.

From this definition, it can be seen that waste reduction methods also qualify as cost cutting measures regularly practiced by business and industry, and conscientious purchasing patterns practiced by consumers. Business and industry respond to the profit motive, which is perhaps the greatest incentive to reduce unnecessary consumption and waste in their processes. Most consumers, however, are willing to pay for convenience resulting in the purchase of products that are packaged for that purpose or products that may not be needed.

Waste reduction activities are the most cost-effective ways to manage solid waste because material does not enter the waste stream. These activities are also the most difficult to accomplish, since they require changes in lifestyle, consumption patterns, work habits, as well as voluntary effort by homeowners, businesses, agencies and individuals. Waste reduction also is difficult to legislate. For these reasons, waste reduction is best accomplished through education. Emphasis must be placed on making consumers aware of the consequences of their actions and/or inactions, and on informing citizens, public officials and businesses of methods to reduce waste volumes.

LOCAL EFFORTS

There are some techniques of waste reduction that require a comprehensive community effort that the County will support and participate in whenever possible. Some examples include changes in types of products, changes in the way products are packaged, changes in the durability of products through extended product warranties, and changes in manufacturing processes, which result in, reduced material use. These techniques require industry support and regional coordination. All citizens can have an influence on these processes through consumer preference in choosing products and companies that provide opportunities for waste reduction.

Paper use in some businesses, governmental offices, and educational institutions is extensive. Measures that can reduce this use are double-sided copying, simplifying forms, and eliminating all but the essential use of paper through the use of the micro-computer/word processor. These measures can reduce paper consumption by one-half and usually increase efficiency in the process. Because education is the primary method of reducing waste at the consumer level, most of the waste reduction activities are discussed in the chapter on Education. This chapter, Waste Reduction, will focus strictly on activities that generally assist in waste reduction and those that will have the most impact on government, business, and industry waste generators in Riley County.

There are many waste reduction techniques that can be used by individuals and businesses. Many of these ideas are listed below and can be fine-tuned to fit any person, company, or business.

WASTE REDUCTION IDEAS

(EPA Business Guide for Reducing Solid Waste, Nov., 1993)

PAPER REDUCTION IDEAS

- Buy less in general
- Buy longer lasting items
- Buy items with less packaging
- Reduce paper use
- Purchase used equipment or more durable equipment
- Purchase groceries and home products with the intent of reducing waste
- Establish a company-wide double-sided copying policy, and be sure future copiers purchased by your company have double-sided capability
- Reuse envelopes or use two-way envelopes

- Keep mailing lists current to avoid duplication
- Make scratch pads from used paper
- Circulate (rather than copy) memos, documents, periodicals, and reports
- Reduce the amount of advertising mail you receive by writing to the Direct Marketing Association Mail Preference Service, PO Box 9008, Farmingdale, NY 11735-9008, and ask that your business be eliminated from mail lists
- Use outdated letterhead for in-house memos
- Put company bulletins on voice or electronic mail or post on a central bulletin board
- Save documents on hard drives or floppy disks instead of making paper copies
- Use central files to reduce the number of hard copies your company retains
- Proof documents on the computer screen before printing

PACKAGING REDUCTION IDEAS

- Order/Offer merchandise in bulk
- Purchase and pack products with minimal packaging
- Establish a system for returning cardboard boxes and foam peanuts to suppliers for reuse
- Work with suppliers to minimize the packaging used to protect their products
- Request that deliveries be shipped in returnable and/or recyclable containers
- Use reusable and/or recyclable containers for shipping products
- Repair and reuse pallets or return them to the supplier
- Reuse newspaper and shredded paper for packaging
- Reuse foam packing peanuts, bubble wrap, and cardboard boxes, or donate to another organization
- Use shipping containers designed for multiple uses

EQUIPMENT REDUCTION IDEAS

- Rent equipment that is used only occasionally
- Reuse worn out tires for landscaping, swings, etc.
- Purchase remanufactured office equipment
- Establish a regular maintenance routine to prolong the life of equipment like copiers, computers, and heavy tools
- Use rechargeable batteries where practical
- Install reusable furnace and air conditioner filters
- Reclaim usable parts from old equipment
- Recharge fax and printer cartridges or return them to the supplier for remanufacture

- Sell or give old furniture and equipment to other businesses, local charitable organizations, or employees

INVENTORY/PURCHASING IDEAS

- Implement an improved inventory system (such as systems based on optical scanners) to provide more precise control over supplies
- Avoid ordering excess supplies that may never be used
- Advertise surplus and reusable waste items through a materials exchange
- Set up an area in the business for employees to exchange used items
- Donate surplus produce to food banks, if still edible
- Substitute less toxic or nontoxic products for products such as inks, paints, and cleaning solvents
- Use products that promote waste reduction (products that are more durable, of higher quality, recyclable, and reusable)

WASTE REDUCTION GOAL

To reduce the per capita volume of solid waste generated in Riley County to no more than 3 pounds per person per day by the year 2020.

Solid Waste Management Action/Policy Plan

Waste Reduction

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1	Update Solid Waste Characteristics Study every five years to determine progress toward waste reduction goals and to identify the segments of the waste stream which need to be targeted for waste reduction activities	Solid Waste Mgt. Comm.	January 2020	$5,000	Grant Solid Waste Fund
	TOTAL			$5,000 one-time	

RECYCLING

Chapter 6

CHAPTER 6

RECYCLING

INTRODUCTION

Recycling can be defined as the process of capturing materials before they enter the waste stream (Source Separation) or after they enter the waste stream and before they are ultimately disposed of (Resource Recovery), returning them to industry for remanufacture into another product, and sale of the remanufactured item in the marketplace. Using this definition, it becomes evident that recycling is not fully complete until the material involved is returned to commerce. The full cycle thus involves all aspects of materials handling including:

Collecting
Sorting
Processing for Shipment
Transporting
Remanufacturing
Consumer

In recent years recycling as a solid waste management strategy has been increasing in popularity among the general public as well as within the solid waste management profession. The reasons for this shift in emphasis from landfilling to recycling are:

The cost of landfilling has increased dramatically due to:

- Closure of landfills reaching capacity or contaminating groundwater.
- Expense of groundwater remediation following contamination.
- Expense of litigation following contamination.
- Scarcity of physically or politically appropriate sites for new landfills.
- More stringent Federal and state regulations.

Markets for recyclables have changed due to:

- Increased research and development into new products and technologies to make recycling more economical.
- New investment in recycling facilities as the result of state legislation banning materials from landfills and mandating recycling programs at the local level.
- Increased consumer demand for recycled products.

- Increased volumes of materials to be recycled.
- The general public is becoming more aware of the problems associated with waste disposal and is demanding more environmentally sensitive alternatives.

METHODS OF RECYCLING

There are two basic ways of recycling materials:

- **Source separation**
- **Resource recovery**

SOURCE SEPARATION

Source Separation involves the separation of materials, by the generator or source of waste, from the municipal solid waste (MSW) stream prior to the collection of the remaining MSW. In other words, items which are to be recycled are never placed in the trash to begin with but are kept separate until collected for recycling. Examples of materials which may be "source separated" are yard waste, glass, aluminum, paper, plastics and various metals.

Once separated, the materials may be collected for recycling by one of two methods:

Drop-off recycling
Curbside recycling

DROP OFF RECYCLING

This method is accomplished by the generator storing the collected recyclables and then delivering the materials to either an attended or unattended recycling station or depot, or to a larger buy-back recycling center. Although drop-off recycling is less expensive, participation generally is lower with this method.

CURBSIDE RECYCLING

This method is accomplished when the recyclables are picked up at the source, i.e. the household or business. Usually a separate container is set out for pickup just like trash pickup. Pickup can be either at the curb or the alley depending on where regular trash is picked up. Curbside recycling is much more expensive but participation rates are much higher than with drop-off recycling because of the convenience factor.

RESOURCE RECOVERY

The term Resource Recovery refers to the process of removing recyclables from the waste stream after they have been mixed in with the MSW. Hand or mechanical

sorting may be used to separate the various recyclables from mixed trash. This method is economical to implement in terms of the collection cost because no special collection, other than normal trash pickup, is needed. However, the sorting of the material from mixed refuse is quite expensive and often the quality of the recyclables is lower because of contamination from the refuse itself.

RILEY COUNTY RECYCLING FIGURES

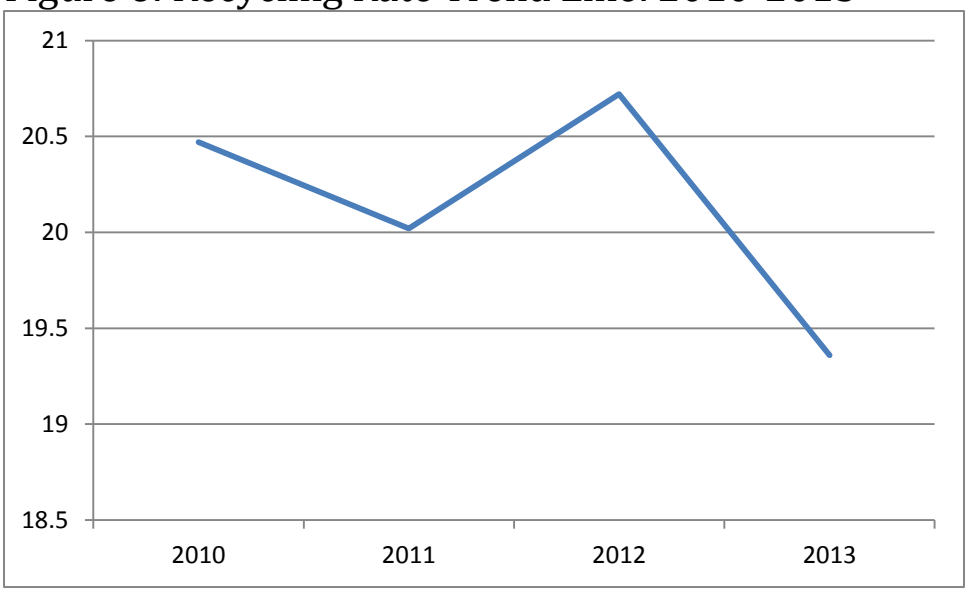
The current recycling statistics are based solely on the figures available through local entities within Riley County, which does not account for the large quantities of materials being recycled through entities outside of the County. A large percentage of the recycling effort is accomplished through local, private recycling entities. In addition to the recycled material from private firms, the figures also include materials recycled through the Household Hazardous Waste Facility and the Solid Waste Facility, such as used oils, paint, white goods and compost and e-waste through Howie's Recycling.

The figures do not include the unknown tons of material which pass through the county annually but are not recycled through programs associated with the County, such as office paper, which may go through security firms or entities which ship their recyclables to larger facilities or programs around the state. For the purposes of this plan, recycled materials which make up the recycling rate consist of tonnage recycled through a local, private recycler, recycled material diverted through the Household Hazardous Waste Facility, and yard waste diverted through the Yard Waste Facility, all relative to the annual tonnage of MSW.

Table 3: Riley County Annual Recycling Figures (in Tons)

Source	**Local Private Recycler**	**HHW**	**Solid Waste Management Facility**				
	All Material Types	All Material Types	Brush/ Grass/ Recycled White Goods/ etc.	Total Recycled	MSW	Total MSW	Recycling Rate†
2010	3436.95	200.09	8498.67	12135.71	47149.18	59284.89	20.47
2011	4330.90	163.72	7042	11536.62	45619.90	57156.52	20.18
2012	4611.34	162.88	6811.85	11586.07	43595.62	55181.69	21.00
2013	5044.03	78.11	5649.07	10771.21	44866.36	55637.57	19.36

Figure 6: Recycling Rate Trend Line: 2010-2013



†Figured as annual percentage of Municipal Solid Waste

FACILITIES FOR RECYCLING

Regardless of the method used to recycle, usually some sort of facility is necessary to sort or process collected materials. The type of facility required depends on the method of recycling selected. A buy-back recycling center, usually privately owned, may be adequate for a drop-off program. However, curbside recycling generally requires a more sophisticated facility which can accommodate the equipment used in the collection process.

The equipment may vary from a compartmentalized vehicle into which sorting is done at the curb to a single compartment vehicle. The single compartment vehicle requires a facility to sort the various recyclables from each other either by hand on a picking line or by mechanical equipment. For purposes of this Plan, such a facility for sorting recyclables will be known as a Materials Recovery Facility (MRF) as opposed to a Resource Recovery Facility which sorts recyclables from mixed refuse. A Resource Recovery Facility is not considered an economically viable option for Riley County.

RECYCLING MARKETS

As stated above, recycling as a waste management strategy is only viable if materials can be sold in the marketplace and eventually returned to commerce. Unfortunately, there is not always an economical market for all the materials that could be recycled.

In most cases, markets will vary from region to region depending on the proximity to an end-user. Transportation costs are often the limiting factor in determining the feasibility of recycling. Even though a certain material may have value to an end-user, the cost of transporting the material to the end-user may exceed its value. In some cases then, it may require a subsidy or development of an alternative market to make the material recyclable in a given community.

In Riley County this is the case with container glass. Riley County has been recycling glass through a contract for services with a local recycler. The compensation paid is a maximum of $15,000 subject to demonstrating that costs exceed revenue. The purpose of the contract is to maintain a local outlet for recyclables in general.

Materials that appear to have stable markets are aluminum cans, plastic, glass, corrugated cardboard, some high-grade papers, steel cans, mixed paper, and newspaper. Other materials such as certain types of plastics, may be recycled when markets are favorable. The remainder of the waste stream cannot be recycled until a viable market is developed.

Most of the changes in markets are due to industry response to state and Federal legislation and, more importantly, to consumer preferences. Local government, as a consumer itself, can have some impact on the development of markets for recyclables through internal procurement policies.

PROCUREMENT POLICIES

Due to volume and repetitive purchases by business and government, procurement programs that stress the purchase of products made from recycled materials can be effective in creating a market demand. If enough consumers demand the recycled products, industry will invest more in production and the supply will increase to the point where prices of recycled products will be comparable to other products. Even now there are cases where recycled products compare quite favorably.

Examples of recycled products in use are paper towels, toilet paper, computer paper, copy paper, note and legal pads, letterhead and envelopes, and the use of recycled plastic bags or bins in curbside recycling programs. Currently a number City of Manhattan and Kansas State University departments use recycled paper products such as letterhead, envelopes, and copy paper. Riley County Departments use recycled paper when it is the cheapest available product. The County has specific programs to target office paper such as printer paper, copy paper, newspaper and electronic wastes such as printer cartridges. These programs are implemented by the majority of departments while many departments have created interoffice recycling programs for aluminum cans and plastic bottles, depending on the quantities these wastes may consist of within the various department offices.

ORGANIZATION FOR RECYCLING

At present there are a number of entities involved in recycling efforts in Riley County. These include for-profit businesses, not-for-profit organizations, and the various local governments. Riley County Planning & Development and Public Works Department staff administers the various recycling programs and provides information to the general public regarding recycling programs and recycling opportunities in our community.

Despite these efforts, there are many recycling projects underway which do not involve the County in any way. All of these efforts should be commended and encouraged to continue. However, it must be emphasized that an overall, coordinated, community-wide recycling program must involve local government in order to be successful. This certainly does not negate the possibility of public-private partnerships to design and implement recycling programs.

Until such time as markets for recyclables improve dramatically, local government will have to play a lead role in developing and directing recycling programs. For now, Riley County will continue to do that with the idea of trying to involve all sectors of the population in the effort, including other local governments.

KANSAS STATE UNIVERSITY RECYCLING PROGRAM

KANSAS STATE RECYCLING PROGRAM
HISTORY

The Recycling Program (PDF) started in 1989 and is coordinated through the Division of Facilities. Grants from the Kansas Department of Health and Environment (KDHE), Alcoa, Pepsi, Coca Cola, and City/University funds made it possible to purchase recycling equipment, such as trailers, a side-load collection truck, collection bins, carts, and balers to process the material.

In 1998, the K-State Recycling Committee was formed, comprised of faculty, staff, students and Division of Facilities representatives. The committee's goal is to help expand recycling efforts across the campus and by doing so, create a more environmentally friendly campus, minimize the waste stream and decrease waste management costs.

In 2008, the former Wind Erosion Research building was damaged by a tornado and in 2012 became the new K-State Recycling Center which is located behind Weber Hall on Claflin Avenue.

CURRENT STATUS

In 2012, K-State hauled 5,712,980 lbs. (2,856.49 tons) of materials as waste to the landfill and processed 833,606 lbs. of recyclables. This diversion rate was 12.73%. The cost to landfill amounted to $137,111.52. In 2013 K-State hauled 5,267,660 lbs. to the landfill and processed a total of 1,925,039 of recycling. Diversion rate for 2013 was 26.76%. The cost to landfill was $ 126,426.84.

Stop Drop - Going Single-Stream

In the spring of 2013, K-State implemented a single-stream recycling system to facilitate recycling on campus. This will be a huge improvement as recyclables do not have to be sorted by the people who generate them and will entice more participation.

EVENTS

Kansas State Recycling uses many events from around the University to support recycling. These events include many of the athletics program such as football and basketball. They have also partnered with Department of Environmental Health and Safety at Kansas State University to assist in community wide electronic waste collection programs. In 2013, K-State participated in the national RecycleMania competition. K-State placed 153/273 in 2013, with a recycling rate of 26.73% over the 8-week competition period.

In the fall of 2013 Kansas State University started producing biodiesel fuel. This was made possible through grants from the Soybean Commission and Kansas State University. The oil is being processed at the KSU Recycle Center. A total of 8 students are currently active in the entire process from collection to consumption. This process also shows ways that KSU just doesn't recycle paper, but goes the full spectrum in many products. Kansas State University also diverts thousands of pounds of compostable food products from the three dining facilities at KSU to the Agronomy farm. The food is being composted alongside the tons of soil that are diverted from greenhouses at the university. Both these products integrate well with the agronomy farms' programs in which students are taught the entire composting process.

CURRENT LOCAL PROGRAMS

Following is a summary of the various recycling programs which Riley County has funded or participated in since the beginning of the solid waste planning process in late 1973. The programs have been divided into various categories for ease of presentation:

DROP OFF RECYCLING

Riley County's support of drop-off recycling to date has consisted of:

- Informing the general public about recycling opportunities in the private sector and encouraging their use.

- Attempting to maintain the private sector drop-off opportunities, as much as economically practical, by supporting the recycling of materials having marginal markets through price subsidies or development of new markets.

This strategy resulted in the following programs:

- Revision and Display on the Riley County website of the Flint Hills Recycling Directory on a biannual basis - A comprehensive listing of all reuse or recycling drop-off outlets in the Manhattan-Riley County area (Last biannual publication - 2007-2008).

- Contract for recycling services – Riley County currently provides an annual payment to Howie's Recycling to offset demonstrated losses from the recycling of certain materials, for example plastics, glass, steel cans. To date only Howie's Recycling has entered into an agreement to provide the service. The amount of compensation is subject to a maximum annual payment of $15,000.

CURBSIDE RECYCLING

From 1990 to the present time, Riley County, the City of Manhattan, and the Solid Waste Management Committee have conducted a number of activities in an attempt to develop a city-wide curbside recycling program. Some of the efforts included a curbside recycling pilot program, a city-wide curbside recycling survey and a Mayor's Recyling Task Force. However, no sustainable public curbside recycling program was able to be developed out of these efforts. Nevertheless, various private curbside recycling programs have been attempted over the years. Currently several of the private trash hauling companies offer curbside recycling programs. This appears to be the most likely method for providing such services in the near future.

DIVERSION/MARKET DEVELOPMENT PROGRAMS

Christmas Tree Recycling Program - City of Manhattan, Kansas Wildlife & Parks, and Riley County Fish & Game Association cooperate to collect trees after Christmas and sink them in Tuttle Creek Reservoir for fish habitat enhancement.

Office Paper - Many Riley County Departments within the Riley County Office Building participate in an office paper-recycling program.

Procurement - The Riley County Board of Commissioners has recommended that Departments use post-consumer recycled paper whenever feasible.

POTENTIAL FOR RECYCLING

It is estimated, based on national statistics, that about 34 percent of the Riley County discards currently moving through the Solid Waste Facility have potential for recycling. It is unlikely 100 percent of any recyclable material category can be recovered for recycling. Some materials are easier to recover than others and some have greater value in the recycling market than others. The largest impact will likely be achieved by focusing recycling efforts. Priorities for recycling should be established by considering:

- Materials available in the largest quantities,
- Materials with the highest value in the recycling market, and
- Materials most easily recycled,

A primary focus should be on paper products, the largest mass of potentially recyclable material now being discarded. Corrugated cardboard, the largest paper category, can usually be easily separated at the source, and has fairly consistent market value. Newsprint, another large category, is also fairly easy to separate for recovery. Sorted office paper also has a good market value.

The second recycling focus should be on metals, though they comprise a relatively small mass of the recyclable discards. However, they are usually relatively easy to recycle and command a high price, especially non-ferrous metals which include aluminum beverage cans.

The third focus should be on plastics. Plastics are one of the smallest categories by weight but one of the largest by mass. #1 and # 2 plastics compose the vast majority of the plastics waste stream and have a consistent market value.

Finally, a large portion of the solid waste facility discards are comprised of various types of organic materials. They include very low grade mixed paper, food waste, yard and wood/lumber waste, and other mixed organic material. Nearly all of this material could be composted if it could be separated and collected. Separation and collection would be difficult and composting would eventually require a costly expansion of current composting activities in the county.

COST OF RECYCLING

As discussed previously, recycling most often cannot be funded from the revenues generated by the sale of recyclable items. Additional support is needed from tipping fees, taxes, monthly service fees or other sources. The cost also will vary depending on the type of recycling done. Drop-off strategies may be employed with minimal expense, while curbside collection will cost more.

The feasibility of recycling as a cost-effective method for managing solid waste also depends, to a large extent, on the cost of alternatives. Recycling will not be seen as a viable waste management option as long as it is relatively inexpensive to dispose of municipal solid waste by landfilling. At present, the general perception is that no financial incentive exists for the County, trash haulers, or citizens to recycle. However, this perception is based on the inaccurate assumption that landfilling is the least expensive disposal option. Not accounted for in this disposal "cost" are the long-term societal costs of <u>not recycling</u>.

Some of the unaccounted for 'costs' of not recycling include:

- pollution costs;
- energy costs;
- resource depletion costs;
- environmental protection costs;
- reduced land value costs;
- long-term monitoring, post-closure care, and remediation costs;
- future costs associated with the conversion to a recycling economy, (e.g. the educational and training costs for a society which has been kept ignorant of its own waste problems and responsibilities);
- the many costs associated with the transfer of responsibility of an area's waste to another part of the country with lower disposal fees

Recycling, as a solid waste management strategy, is becoming an economically viable option for local government and the private sector. Therefore, cooperative efforts should continue to be explored and pursued to increase the amount of waste recycled.

BENEFITS OF RECYCLING

According to the *Environmental Management Homepage, "Environmental Resources"* from the University of Wisconsin-Madison, there are some universal benefits to buying materials made with recycled products. These are:

- Fewer items are sent to the landfill
- Consumers pay less for waste disposal as recycling programs earn more money
- Recycled product manufacturing creates jobs
- Natural resources are being saved
- Pollution is being reduced

Listed below are some reasons why public and private agencies should buy recycled products according to the *Environmental Management Homepage, "Environmental Resources"*.

- Creates long-term markets
- Reduces the disposal of recyclables
- Convinces manufacturers to use more recycled materials
- Conserves resources and energy
- Creates jobs and economic development
- Satisfies legislative mandates
- Sets an example for the private sector
- Provides a proactive rather than a reactive approach to the waste management problem
- Enhances organization's image
- Saves money

RECYCLING GOAL

To recycle as much of our solid waste as possible but achieve a recycling rate of at least 22% of the entire waste stream by December 31, 2020.

Solid Waste Management Action/Policy Plan

Recycling

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1	Promote public awareness and use of all drop-off programs	Solid Waste Mgt. Comm.	Ongoing	$0	
2		Solid Waste Mgt. Comm.	Ongoing	$0	
3	Promote volume based pricing for waste disposal	Solid Waste Mgt. Comm.	Ongoing	$0	
4	Provide a subsidy on a limited basis for the recycling of glass, plastics, newspaper, e-waste and other materials if necessary to maintain drop-off opportunities	Solid Waste Mgt. Comm.	Annual	$15,000/ yr	RC General Fund
5	Encourage businesses and public agencies to adopt recycled products procurement policies	City of Manhattan/RC Commission RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
6	Encourage businesses and public agencies to adopt recycling programs	Solid Waste Mgt. Comm.	Ongoing	$0	
7	Maintain the paper recycling program for all RC Offices	RC offices	Ongoing	$0	
TOTAL				$ 15,000/ yr	

YARD WASTE PROCESSING

Chapter 7

CHAPTER 7

YARD WASTE PROCESSING

INTRODUCTION

Yard waste includes organic materials normally generated in the maintenance of yards, gardens, public grounds, etc., such as grass clippings, leaves, trees, brush and other vegetative material. Because it is organic in nature, yard waste does not require any special processing in order to be disposed of properly. In fact, it can often be used in a manner that actually benefits the environment. Common methods of utilizing yard waste are composting, wood chipping and firewood salvaging. By using these methods, a large portion of yard waste can be diverted from the landfill. Yard waste processing can reduce the waste stream by 15-20% and for the purposes of this plan the amount of yard waste diverted from the solid waste stream through processing is included as part of the recycling rate.

Table 6: Yard Waste Annual Material Analysis

Potential Material Types to be addressed by Yard Waste Programs (In Tons)

	Brush	**Commercial Brush**	**Grass**	**Woodchips**	**Annual Total***	**Annual % of Total Material****
2011	2817	3118	993	153	**7081**	**15.52**
2012	3178	2661	782	83	**6704**	**15.38**
2013	2661	1922	865	25	**5473**	**14.31**
Average	2885	2567	880	87	**6419**	**15.07**

*from yard waste facility at solid waste facility only
**from solid waste facility inbound material

COMPOSTING

DESCRIPTION

Much of the total volume of grass clippings and leaves can be eliminated from the waste stream by being utilized at the site where they are produced. Grass clippings can be left on the lawn or used as mulch. Leaves can be used as mulch, or incorporated into garden soil. Grass clippings, leaves, and other vegetation can be composted in a backyard compost bin. When these approaches are not feasible, grass and leaves can be taken to a central compost site such as the compost site at the Riley County Solid Waste Facility.

Composting is a natural, microbiological process whereby organic materials such as grass clippings, leaves, vegetable wastes, etc. are decomposed to form a rich soil amendment called humus.

There are two different composting processes that can be employed; aerobic and anaerobic. *Aerobic* composting takes place in the presence of sufficient or excess oxygen. The microbes active in aerobic composting produce heat but do not produce methane gas. *Anaerobic* composting takes place in conditions that are oxygen starved. Microbes active in anaerobic composting produce both heat and methane gas. Left alone, a decomposing pile of organic material will naturally go from an aerobic state to an anaerobic state. The anaerobic state is generally undesirable due to the odors produced, which may be objectionable to neighbors.

Compost system operators use static piles which are turned infrequently; windrows which facilitate frequent turning; and in-vessel systems which mix the composting material, usually aerate it, and screen it at the point of discharge. Compost occurs most rapidly if the mix of grass and leaves results in a carbon: nitrogen ratio (C:N) of about 30:1 and the material kept about 50 percent moisture. Actively composting material goes through an active composting stage when high temperatures are produced, and a curing stage during which lower temperatures are produced and the compost becomes stable. The heat produced reduces weed seeds and pathogens and can help to break down any chemical contamination.

Both aerobic and anaerobic composting produces humus and heat. Heat is generated during the processes due to activity by microbes. When the temperature begins to drop, the compost enters its curing phase and begins to stabilize as humus.

COMPOST USES

Yard waste compost is typically used as mulch or a soil conditioner. In gardening it can be used as both, being applied as mulch during the growing season and incorporated as a soil amendment during the next seedbed preparation. It usually is not used as a fertilizer because the nitrogen, phosphorous and potash content is typically very low.

When added to a soil, humus will improve the soil, increasing its moisture retention if the soil is droughty, and will improve drainage if the soil is clay. A soil with an adequate amount of humus will retain fertilizer applied to the soil better than a soil which does not have enough humus because of the high ratio of surface area to particle mass characteristics of humus and the naturally higher cationic exchange capacity of organic matter. The result is better plant growth with less applied moisture and fertilizer.

Grass and leaves are composted at the yard waste site at the Riley County Solid Waste Facility. There is no charge for placing material in the compost site. Finished compost is made available to the public for a fee.

WOOD CHIPPING

DESCRIPTION

Larger trees, limbs, and brush cannot be composted due to their size and the length of time it would take to compost. These items, however, can be mechanically chopped into wood chips that are useful in a variety of ways. A small volume of clean chipped wood waste is delivered to the Solid Waste Facility and is made available to the public at no charge.

WOOD CHIP USES

Coarse wood chips are produced in the first stage of a chipping process. These materials can be used as mulch around bushes and trees or can be used as surfacing for trails, erosion control, etc. A second chipping process is necessary in order to produce a smaller, more uniform wood chip. This kind of chip is popular for finish landscape purposes, and would be readily used by the community. In some operations, vegetable dyes are added to the wood chips to achieve desired landscape effects.

FIREWOOD

Larger trees and limbs can be cut up for firewood. This material can be reclaimed by the homeowner at the home site or can be reclaimed by persons desiring firewood from the designated cutting area of the Solid Waste Facility.

TREE WASTES

All tree and brush wastes are discouraged from entering the Transfer Station. Tree branches and small stumps are accepted at the yard waste-processing site at the Riley County Solid Waste Facility. Logs are accepted at the same site and are salvaged as firewood by the public. A small amount of wood material that is already chipped is made available to the public. Periodically, excess wood and brush may be incinerated by open burning.

CURRENT PROGRAMS

Riley County discourages yard waste from being processed through the transfer station for disposal in a sanitary landfill and encourages diversion of yard waste through various means.

The cities of Riley and Ogden, Fort Riley and Riley County all have approved yard waste sites for grass clippings and leaves, and/or trees and brush (as described in Chapter 2.) All programs are approved and permitted by KDHE. Leonardville, Ogden and Riley municipalities operate brush burning operations at sites available to the public. The yard waste is collected and burned on a weekly basis. The Ogden facility also operates a limited grass and leaf composting program with compost available at no charge to the general public.

Riley County currently operates a yard waste-processing program at the Solid Waste Facility. Accepted at the site are trees, limbs, brush, commercial brush, grass clippings, leaves and other types of yard debris. For individual citizens, dumping at the site is free to encourage utilization. Trees, limbs and brush from commercial entities require a disposal fee. Activities are funded by the solid waste facility tipping fee as well as through the sale of compost, metal (including white goods) and hay. The existing yard waste program is a drop-off program only, meaning the waste disposer brings yard waste to the facility.

The working portion of the site where grass clippings and leaves are composted has been graded to drain and is asphalt paved to provide a solid working surface. Materials are unloaded in four separate areas depending on the type. Grass and leaves are unloaded at the compost site. Clean chipped wood material is accepted at an area adjacent to the compost site. Limbs and trees are stored at the tree and brush area with access for those desiring to reclaim firewood. The firewood is provided free to the general public on a first-come, first-serve basis. Trees, limbs, and brush not reclaimed for firewood are currently chipped and removed from the site.

Leaves and grass clippings are unloaded in the compost windrow. The composting material is regularly turned with a compost turner to promote decomposition. It takes about one year to produce finished compost. For further discussion of the composting process please refer to the Riley County Yard Waste Composting Facility Operations Plan.

Equipment for the program currently consists of a compost turner, water wagon, tractor and loader. Two advanced trained employees manage the program.
In 2013, 243 tons of compost were distributed to the public. The annual rate fluctuates due to availability of composting materials. Riley County does not have equipment to screen the compost. As it is not screened, the finished compost contains small pieces of wood and a small amount of other visible, but harmless, contaminants such as plastic and aluminum beverage cans, rope, and small toys and balls. Education of the public and hand picking of those contaminants can help alleviate that situation. However, mechanical screening is the only sure way to remove most of the unwanted material.

If the compost were screened, it would have a higher value and potentially could be sold at a higher price, thus producing additional income to the project. Screening could be accomplished by the County purchasing a screen or by contracting for that service. In addition, public/private relationships might be established in order to increase composting of wastes to produce useful resources.

Nationally, 15 to 20 percent of the waste going to landfills is yard waste. The Riley County Solid Waste Characterization Study revealed that only about 5 percent of the material going through the Transfer Station component of the Solid Waste Facility is yard waste including grass clippings, leaves, trees, and brush. However, it also showed that about 64 percent of the other material is made up of organics that potentially could be composted if they could be separated from the mixed waste stream.

About 5000 tons of tree and brush wastes are delivered to the tree and brush site in a year. In addition to its possible use for landscaping and related uses, that material has potential as an energy source for public facilities or industry as discussed in the section on Waste to Energy (Chapter 9).

DISASTER WASTES

An important aspect of Yard Waste is the amount of tree and brush debris which can accumulate as a result of a natural disaster. This issue is discussed in detail under the Special Wastes Section (Chapter 12).

POTENTIAL MARKETS FOR MATERIAL

The compost and wood chips can be used locally for mulch, landscaping materials, soil conditioners, plant propagation/potting soil mixtures, or for use as a top dressing on worn out sod. Potential markets for these materials:

Landfill cover
Nurseries
Sod farmers
Soil blenders
Landscape businesses
Parks departments
Golf courses
Homeowners and gardeners
Highway departments
School districts
Farmers that raise specialty crops

Each market has requirements for the quality of compost or wood chips it will accept. Wood chips need to be uniform and clean. Markets that use compost in bulk and incorporate it as a soil conditioner will accept compost that is less than uniform and quite coarse but need a minimum of non-decomposed woody material. Markets that use compost as mulch require a uniform, well-graded, product for the sake of appearance but can accept larger woody particles. Markets that use compost in a soil mix or as top dressing require a fine textured mature product that handles well and is uniform. The nursery industry when using compost in a soil mixture may require different grades of coarseness depending on the weight of the mix, the amount and size of air space and the desired drainage characteristics. The nursery industry has very exacting equipment for the materials used in container mixes. To be successful, the yard waste program will have to know the requirements of the markets and meet those requirements.

EXPLORING OPTIONS

The first priority in dealing with yard waste should be to reduce generation and to utilize it at the point of generation. Educational programs can inform the public about options for leaving grass clippings on the lawn. Grass and leaves can be composted on site for use as a soil conditioner or used as mulch in gardens and flowerbeds. Larger tree waste can be used as firewood. Other tree and brush waste can be chipped or shredded on site for use as mulch. Options for enhancing on site use should be explored.

It is not always feasible to utilize the material on site. The Riley County Solid Waste Facility provides an opportunity to convert that material into a beneficial product that can be distributed back into the community. The yard waste program should continue and be enhanced to assure the production of a quality product. Use of a compost screen would result in a higher quality, more uniform product and permit the use of more wood chips in the mix.

Larger wood waste should continue to be made available for salvage for firewood. Other brush material should be chipped rather than burned, if economically feasible.

Opportunities should be investigated for co-composting grass, leaf waste with other organic wastes in the community. In addition to the grass, leaves, tree and brush waste, Kansas State University has a leaf storage area. The University Animal Science farms produce large volumes of livestock waste and are currently in the process of composting animal manure. The K-State College of Veterinary Medicine also produces large amounts of animal bedding, much of which is currently delivered to the solid waste facility for landfill disposal. The Agronomy Farm produces crop and grain residues that could well be composted. The City of Manhattan currently chips wood, most of which is used for mulch. Most of these materials would complement each other in composting operations and can be easily source separated. Options for removing barriers to encourage cooperative relationships with all of these waste generators should be explored.

The success of the “free drop-off” approach is demonstrated by the relatively small amount of yard waste currently going through the solid waste facility. That free drop-off and public distribution of products should be continued, if possible. However, generation of revenue (tipping fee or sale of products) could provide for equipment and processes to further enhance beneficial use of yard waste material and such options should be explored.

Specific options that should be explored to improve the handling and utilization of yard waste and increase potential for income:

- Expand public educational programs to encourage further reduction in yard waste generation and on-site utilization of yard waste material.
- Explore options for assisting yard waste generators in preparing material for on-site use (such as development of "backyard" composting bins or on-site wood and brush chipping).
- Consider relationships with the private sector in composting yard waste and processing tree and brush materials.
- Consider relationships with other organic waste producers to develop cooperative composting operations.
- Explore the potential of co-composting other organic portions of the solid waste stream, such as livestock waste, crop and grain waste, animal bedding, and even paper and food waste.
- Explore potential markets for processed yard waste products that could result in income to support operations.
- Continue to explore opportunities for utilization of wood waste as an energy source.

YARD WASTE GOAL

To divert all yard waste from the Riley County Transfer Station municipal solid waste stream to an appropriate beneficial use or location.

Solid Waste Management Action/Policy Plan

Yard Waste Processing

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1.	Encourage the processing and use of yard waste material at the site it is generated	RC Public Works Solid Waste Mgt. Comm. Extension	Ongoing	$0	
2	Discourage yard waste from being deposited at the solid waste facility	BOCC/RC Public Works	Ongoing	$0	
3	Maintain separate free drop-off for composting site and program	RC Public Works	Ongoing	$2000/yr	Solid Waste Fund
	Maintain charge for commercial brush and free drop-off for non-commercial brush unless it can be demonstrated that a charge for non-commercial will not divert this material to the landfill.	Solid Waste Management Committee in cooperation with Kansas State University	Ongoing	$0	Grant
4	Continue to distribute to the public all or part of compost and other acceptable products of the program.	RC Public Works	Ongoing	$0	
5	Burn brush and tree waste when chipping not feasible	RC Public Works	Ongoing	$5000/yr	Solid Waste Fund
6	Continue to explore alternative uses of wood waste including energy production	Solid Waste Mgt. Comm.	Ongoing	$0	
7	Continue City of Manhattan Spring Clean Up Program with emphasis on material recovery and reuse.	City of Manhattan RC Public Works	Annual	$0	
8	Provide technical assistance to RC cities wishing to establish a yard waste diversion program	RC Public Works	Ongoing	$0	
9	Periodically test compost to determine acceptability for public distribution	RC Public Works	Every third year	$500/ event	Solid Waste Fund
10	Use excess yard waste products on County property	RC Public Works	Ongoing	$0	
11	Explore options for revenue production through user fees or sale of products.	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
TOTAL				$7500 /yr	

LANDFILLING

Chapter 8

CHAPTER 8

LANDFILLING

INTRODUCTION

Regardless of the solid waste management methods used, there will always be residuals from the waste stream that will need to be landfilled.

The current state of the art sanitary landfill is much different than the sanitary landfills once operated in Riley County. Modern landfills are required by the Resource Conservation and Recovery Act of 1976 (RCRA) to install leachate collection systems and liners in all fill areas. The leachate collection systems remove the downward percolating leachate after its movement is stopped by the landfill liners. Collected leachate is then treated as a wastewater.

REGIONALIZATION

Because RCRA standard landfills are so expensive to build and operate, it is more economical for former landfill owners and/or operators to use a regional landfill. Although transportation costs are greater, these costs are more than offset by the savings involved in cost sharing the capital investment required to build a RCRA landfill and the associated liability. Riley County contracts for the transfer and disposal of solid waste in a Subtitle D landfill which is approved by the State.

CURRENT LANDFILLING

The current location for Riley County landfilling is NR Hamm Quarry located in Perry, Kansas. Local MSW is transported there 6 days a week. The Riley County Sanitary Landfill is closed. The choice of which regional landfill to use is determined by the Riley County Commission.

LANDFILL STANDARDS AND REGULATIONS

Riley County will continue to use only landfills that meet all applicable state and federal regulations.

LANDFILL CLOSURE/REMEDIATION

* Riley County has completed closure of the Riley County Sanitary Landfill.
* Riley County shall enforce applicable closure/post-closure guidelines for the Riley County Landfill.
* Riley County shall sample all monitoring wells at the closed Riley County Sanitary Landfill as directed by KDHE. The samples shall be analyzed for the identified contaminants of concern. Each sample shall be analyzed at the detection limits at or below the Kansas Action Levels (KALS) by a KDHE Certified laboratory. Riley County shall measure static water elevations in all monitoring wells at the time of each sampling event.
* Riley County shall document the quality assurance/quality control (QA/QC) for all sample collection, sample control and sample analysis procedures.
* Riley County has obtained the horizontal and vertical location for all monitoring wells. These locations were established by a survey conducted by a licensed surveyor. The horizontal survey has a distance accuracy of at least the Third-order, class II standard (Federal Geodetic Control Committee). Top of casing elevations have been measured to a mean sea level elevation accuracy of at least the Second-order, class I (Federal Geodetic Control Committee).
* Riley County shall monitor the methane gas concentrations at the landfill boundary. When methane is encountered, it should be tracked to the 0% methane contour.
* Riley County shall obtain periodic Kansas River stage measurements on the Kansas River near the landfill site using the United States Geological Survey data. Up gradient and down gradient river water samples shall be collected at the time of groundwater sampling and analyzed for the same contaminants of concern.
* Riley County shall submit monitoring reports to KDHE on a schedule determined by the agency. The reports shall contain all groundwater monitoring data gathered since the last sampling events. The monitoring reports shall include:
    - Groundwater data for all monitoring including analytical results and QA/QC data, well construction and lithological information (for newly constructed or proposed wells), static water level elevations, and top casing elevations. All sampling procedures, monitoring/extraction equipment used, and QA/QC measures shall be documented.
    - An inventory of chemicals tested, the laboratory detection limits, the Kansas Notification Levels, and the Kansas Action Levels.
    - A groundwater contour map showing monitoring and recovery well (if any) locations.
    - An evaluation of the effectiveness of the remediation program, by use of comparison of recent and past monitoring/remediation information.

- River stage data.
- Any relevant data relating to the monitoring investigation and cleanup of the landfill site (e.g. aquifer/pump test data, treatability studies, implementation of the site closure plans, or related remediation activities).
- Special groundwater monitoring events may be required when the groundwater elevation in contact with the base of the landfill waste mass due to high river stage events.
- On the 134 acre tract located east of the closed Riley County Sanitary Landfill, Riley County leases a portion of the tract for alfalfa and other agricultural crop production. Another portion of the tract has been planted with native cottonwoods and elms. The purpose of the tree plantings is to bioremediate the contaminated groundwater under the 134 acres.

LANDFILLING GOAL

To provide for environmentally safe, economical, and politically acceptable landfilling of the least amount of Riley County solid waste as possible.

Solid Waste Management Action/Policy Plan

Landfill

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1	Continue to transfer RC MSW to a regional solid waste landfill	RC Commission RC Public Works Solid Waste Mgt. Comm.	Ongoing	Determined Annually	Solid Waste Fund
2	Bid for regional solid waste landfill disposal services at least every ten years	RC Commission RC Public Works Solid Waste Mgt. Comm.	As Needed	$0	
3	Dispose of all MSW in a RCRA approved, KDHE licensed landfill.	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
4	Continue monitoring and remediation at RC Sanitary Landfill	RC Public Works	Ongoing	Determined Annually	Judgment Bonds
TOTAL				$0	

WASTE TO ENERGY

Chapter 9

CHAPTER 9

WASTE-TO-ENERGY

INTRODUCTION

Waste-to-energy is defined as the process of converting solid waste into useable energy. Examples of wastes that could be used for energy production are newsprint, cardboard, wood wastes such as tree trimmings and construction debris, processing wastes, and some landfill wastes.

The most common use of wastes for energy is to combust them directly to heat water or produce steam. The most common application of using wastes for energy are for small-scale heating in such institutions as schools, hospitals to large-scale electric power.

COSTS

The cost of using a waste resource as an alternate energy source depends upon the current value of the waste resource, the distance the waste resource would have to be transported for use as an energy source, processing and/or storage requirements, and the manner in which the energy would be used. Each situation (waste and end-use) is unique and would need to be evaluated separately. In addition, the cost of the energy resource already being used or a conventional choice such as natural gas, LP gas, electricity, diesel, etc. would need to be taken into consideration.

However, in general, wastes such as those found in the municipal solid waste stream have not been feasible either technically and/or economically for use as alternative energy sources, with possible the exception of wood wastes.

ACTIVITIES IN RILEY COUNTY

In 1999, Riley County undertook a project to assess the technical and economic feasibility associated with using tree trimmings and brush generated in the county as an alternative energy source. The finding of this project are presented in "*Riley County Wood Waste Resource Assessment and End-Use Cost-Benefit Analysis as an Alternative Energy Source"*. This report was presented to the Kansas Department of Health and Environment in January 2000.

Executive Summary of Report

A wood waste resource assessment and simple cost-benefit analysis was conducted for the city of Manhattan, Kansas, and Riley County between September 1997 and August 1999. The assessment was concerned with estimating the amount (tonnage) of tree trimmings, brush, wood chips, construction and demolition waste, cardboard, and newsprint generated and disposed of within the city of Manhattan and Riley County during this period. Results indicated that over 10,300 wet tons of wood waste (brush and wood chips) were disposed of at the county landfill site within this time period (average 5,150 tons per year), with the majority comprised of brush in the form of tree trimmings. In addition, about 2,250 wet tons of wastes from sawmill and tree trimmings were generated within the county at various locations. The majority of these wastes, including those at the landfill, were burnt primarily to make space for future disposals.

A simple economic analysis (cost-benefit) was performed to ascertain the economic feasibility associated with using brush (primarily tree trimmings) and wood chips generated within the county as an alternative energy source at two different applications within Riley County. In each case the cost-benefit ratio was greater than 1.0, indicating it would not be economically feasible to use these wastes as an alternative energy source. It was also determined that a significant volume of cardboard and newsprint is generated within the county, but due to market price fluctuations and other technological considerations it would not be practical to use them as an alternative feedstock.

The methodology presented in this report should be applicable to other counties and cities within Kansas that wish to evaluate their wood waste, cardboard, and newsprint resources and determine the feasibility of employing them as an alternative energy source. In addition, the resource assessment and cost-benefit analysis methodology should be directly applicable to other counties with an interest in waste-to-energy issues, thereby saving duplication of effort.

FUTURE ACTIVITIES

At this time, no future activities are planned either for assessment and/or technical or economic evaluation of Waste to Energy programs.

Solid Waste Management Action/Policy Plan

Waste-to-Energy

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1	Continue to monitor and explore the feasibility of a waste-to-energy facility in the region	Solid Waste Mgt. Comm.	Ongoing	$0	
2	Continue to explore innovative ways to use waste as energy	Solid Waste Mgt. Comm.	Ongoing	$0	
TOTAL				$0	

SOLID WASTE FACILITY

Chapter 10

CHAPTER 10

Solid Waste Facility

INTRODUCTION

The Riley County Solid Waste Facility has evolved over the years to a location adjacent to the closed Riley County Sanitary Landfill (see site location map in appendix b). With the closure of the landfill a transfer station was developed in order to manage the municipal solid waste stream in Riley County. Out of the original transfer station grew the need for other facilities, such as a tree and brush disposal area, a compost area, a woodchip collection area, a used tire collection area, a white goods collection area and a scrap metal collection area. The entire site has come to be known as the Riley County Solid Waste Facility.

Waste transfer is defined as "the processing of mixed municipal solid waste collected from within a designated area at a single facility for shipping to a remote landfill". Transfer stations have the capacity to process large volumes of waste for the purposes of volume reduction and transportation. Since the transfer station will have more impact upon the cost of waste management than the other parts of the system, it is very important to have a strategic framework within which the transfer station will function.

This strategic framework is approached by locating other waste control programs in the vicinity of the transfer station, such as the County composting program and other disposal sites; a more comprehensive Solid Waste Facility has been developed to address a larger number of waste management concerns. Practices such as composting help recycle certain aspects of yard waste by refining things such as grass and leaves into a mulch product. Tree and brush disposal sites help remove large percentages of the waste stream which would unnecessarily end up in a landfill for disposal. The white goods and scrap metals sites allow for removal of material from the waste stream which could be potentially hazardous in a landfill or could have potential value as a recycled material. The tire collection site allows for the collection of a material which could otherwise be, unfortunately, dumped illegally in public or private areas.

CURRENT PROGRAM

Riley County has used a transfer station as a solid waste management tool since January 2, 1992. However, the official title of the facility has been changed to the Riley County Solid Waste Facility in order to more adequately reflect the changing dynamic of materials accepted at the facility. The contract for transport and disposal of municipal solid waste from the solid waste facility is currently with the N. R. Hamm Quarry of Perry, Kansas. The solid waste is being disposed of in a permitted landfill, owned by the contractor, which is located in Jefferson County, near the City of Lawrence, Kansas. This contract will continue in effect until June 30, 2020.

With regard to the various yard waste sites, such as the composting site, the woodchip collection site and the tree and brush disposal site, please refer to the section of the Solid Waste Management Plan which is concerned with Yard Waste (Chapter 7).

For further information regarding the white goods and scrap metal collection programs please refer to the information regarding the site under the section on Special Wastes (Chapter 12).

For further information regarding the tire collection program please refer to the information regarding the site under the section on Special Wastes (Chapter 12).

SOLID WASTE FACILITY GOAL

Continue to maintain a Solid Waste Facility to process Riley County's present and future solid waste in an economical manner.

HOUSEHOLD HAZARDOUS WASTES

Chapter 11

CHAPTER 11

HOUSEHOLD HAZARDOUS WASTES

INTRODUCTION

Hazardous wastes are solid wastes with certain characteristics that make them hazardous, such as ignitable, corrosive, reactive, or toxic. In the most basic of definitions, ignitable hazardous wastes are those wastes that have a flash point of less than 140 degrees F. Corrosive hazardous wastes are those wastes that have a pH of less than 2 or greater than 12.5. Reactive hazardous wastes are those wastes that react with air or water to produce flammable, explosive, or toxic vapors. Toxic hazardous wastes are those wastes that comprise the Toxic Characteristic Leaching Procedure (TCLP) list, which is a list of heavy metals, pesticides, and organic solvents, that have been found to be the major contaminants in ground water.

WASTE STREAM

In addition to these characteristics, some specific waste streams from businesses have been identified as hazardous wastes. These waste streams have been identified in the F-list, K-list, U-list, and P-list. The F-list of hazardous wastes is those waste streams that are generic in nature and generated by many different types of operations. The K-list of hazardous wastes consists of waste streams that are source specific, i.e. from a specific industrial process. The U-list and P-lists are specific outdated, off-spec, or spilled chemicals.

GENERATORS OF HAZARDOUS WASTE

Generators of hazardous waste fall into four categories under the Kansas Department of Health & Environment: Large Quantity Generator, Small Quantity Generator, Kansas Small Quantity Generator and the Conditionally Exempt Small Quantity Generator. Households and farm operations do not fall under the hazardous waste regulations; however, they also generate hazardous waste in the form of pesticides, fertilizers, auto care products, cleaning products, paint products, personal care products, chemicals, household repair products, and batteries. In general, these special waste materials are called Household Hazardous Waste (HHW). These wastes may legally go to a sanitary landfill for

disposal. Household hazardous wastes have been recognized for their collective contribution to ground water contamination at area landfills.

A common type of HHW is batteries. Some batteries are easily recycled and others must be disposed of properly. Lead Acid batteries contain lead and sulfuric acid. Lead Acid Sealed (or Gel-Filled) batteries contain lead and sulfuric acid. Lithium batteries contain lithium, a reactive metal, and carbon monofluoride. Mercuric Oxide batteries contain mercury. Nickel-Cadmium batteries contain nickel and 17% cadmium. Silver Oxide batteries contain silver and 1% mercury. Zinc Air-Consumer batteries, i.e. "*long life*" batteries, contain 1% mercury. Zinc Air-Industrial batteries (used for railroad signals & maritime buoys) contain no mercury. Zinc-Carbon or Zinc-Chloride (Heavy-Duty Batteries), contain 1-100 ppm mercury and 5-100 ppm cadmium. Lead acid batteries and nickel-cadmium batteries are considered hazardous waste if offered for disposal and are therefore not permitted at the solid waste facility. Lead acid (vehicle) batteries are recycled by local retailers, at the local recycling center, and at the Household Hazardous Waste Facility. Drop off boxes are placed at several locations throughout the county, including the County Courthouse. The public may drop-off batteries for proper disposal by the Household Hazardous Waste program.

HOUSEHOLD HAZARDOUS WASTE MANAGEMENT

Riley County is a leader in household hazardous waste management in Kansas. In 1995, Riley County gained national honors from the Small Quantity Generators Program for its Household Hazardous Waste program. Riley County held its first Household Hazardous Waste Collection Day in 1990, when residents were encouraged to bring their hazardous waste to a drop-off site. A total of 15,376 pounds of waste was collected from 462 households. This type of collection system is not adequate since it is labor intensive, it decreases the ability to recycle materials, and encourages improper disposal from households that miss the clean-up day.

STORAGE SITE

In October 1990, Riley County opened its permanent household hazardous waste storage site. A moveable trailer was added to the site for transport of household materials from neighboring counties and area farms. The site is open weekdays 7:30 AM to 4:00 PM for residents to drop-off household hazardous waste. Riley County operates the permanent collection center at the Noxious Weeds Department located at 6245 Tuttle Creek Boulevard. The County General Fund

defrays the operating and disposal costs of the Household Hazardous Waste Collection Center.

In 1992 Riley County participated in a multi-county household hazardous waste collection program funded in part through a grant from the Kansas Department of Health & Environment. Administered by the Big Lakes Regional Council, two 1-day collection events were conducted in Morris, Marshall, and Pottawatomie Counties in April and October. Riley County developed a portable trailer that acts as a collection center and is used to transport materials to Riley County for storage. The 1993 program was one of increased flexibility of approach and proposed locations in the expectation that such changes would better meet the individual county needs and result in the increased collection and proper disposal of household hazardous wastes.

A grant in 1995 from Wal-Mart provided funds for automobile oil filter presses for each of the counties managed by the Big Lakes Regional Council. The oil that is pressed from the filters is recycled with the used oil and the metal housings are recycled as scrap steel. A large press was purchased for Riley County to press large truck and tractor oil filters. The press is also used to empty and squash paint cans.

Other HHW drop-off sites were developed in Riley County. The second Saturday of each month the Riley County HHW portable trailer is located at Howie's Recycling, 625 S. 10th Street, Manhattan. The trailer is staffed by trained county workers and accepts waste during the hours Howie's is open. A second site is open for HHW drop-off on the Kansas State University campus. This site is operated by trained K-State employees working in the Department of Environmental Health and Safety. Two chemical lockers are located at Edwards Hall and HHW is accepted Monday through Friday, 8:00am to 5:00pm. The lockers are emptied as necessary, at least once each month by Riley County employees. The contents are transferred to the permanent HHW storage facility in Riley County.

In fiscal year 2013, a total of 666,606 pounds of household waste was brought into the program by 8813 county participants in 10 counties participating in the Big Lakes Regional Council: Clay, Dickinson, Geary, Marshall, Morris, Nemaha, Riley, Pottawatomie, Wabaunsee, and Washington. These waste products consisted of several different types at various weights and included 23,528 lbs of batteries, and 256,756 lbs of used oil and oil based paints.

Also in 2013, 113,116 pounds of HHW were redistributed through the reuse waste exchange program, 12,441 pounds of batteries were recycled, 49,888

pounds of used oil and oil based paint were shipped for energy recovery, and 266,871 pounds of used oil were shipped for refining.

Of the above materials, the following weights apply to material which originated solely in Riley County over the same time period:

- Total lbs of HHW: 200,036
- Total lbs of Batteries: 8,432
- Total lbs of Oil and Oil-Based Products 78,062

As the above figures show, a rather significant percentage of waste products traveling through the HHW facility originate within the county of Riley

The Riley County HHW facility can accept hazardous waste from all households and farmers living in Riley County. Hazardous wastes fall into one of four categories: flammable, corrosive, toxic or reactive.

The following are examples of the types of waste accepted at the HHW facility for disposal or recycling:

- Paints of all kinds including both latex and oil base
- All pesticides including herbicides and insecticides
- Lacquers, thinners, stains, paint removers and adhesives
- Used motor oil and oil filters
- Household cleaners
- Spot and stain removers
- Fertilizers
- Waxes and polishes
- All batteries including household and car batteries
- Gas, solvents and antifreeze
- Miscellaneous: roofing tar, sealers, photo chemicals, pool chemicals, mercury and smoke detectors, florescent bulbs and electronic wastes.

PCB BALLASTS

Prior to 1979, fluorescent and HID light ballasts contained polychlorinated biphenols (PCBs). After 1979, ballasts produced without PCBs were labeled "**No PCBs**." A ballast is assumed to contain PCBs if there is no label. PCBs are not considered hazardous waste, although under the Toxic Substance Control Act (TSCA), large quantities of PCB ballasts (more than 16 small ballasts) or leaking PCB ballasts are prohibited from disposal in municipal solid waste landfills, therefore, these materials are not permitted at the solid waste facility. The Household Hazardous Waste program will accept PCB ballasts from households and farms for proper disposal.

CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR PROGRAM

Riley County has seen the need to assist businesses with small quantities of hazardous waste for proper disposal. Riley County has amended the Household Hazardous Waste permit in order that Conditionally Exempt Small Quantity Generators in the County may be assisted with their hazardous waste management.

HOUSEHOLD HAZARDOUS WASTE GOAL

To reduce the volume and ensure correct management of household hazardous waste.

Solid Waste Management Action/Policy Plan

Household Hazardous Waste

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1	Continue Riley County and 10 county Household Hazardous Waste Program	Riley County and Big Lakes Regional HHW	Annual	$50,000/yr	Grant General Fund
2	Maintain a collection and recycling network for used motor oil and oil filters	RC HHW Facility	Ongoing	$0	
3	Provide technical assistance to conditionally exempt small quantity generators on how to modify their processing and disposal practices to reduce or eliminate hazardous waste	RC HHW Facility	Ongoing	$0	
4	Continue household battery recycling program in Riley County	RC HHW Facility	Ongoing	$0	
5	Continue cooperative HHW drop-off program with KSU	Solid Waste Mgt. Committee KSU	Ongoing	$0	
6	Continue HHW drop off site located at Howie's Recycling	Solid Waste Mgt. Committee	Ongoing	$0	
7	Continue conditionally exempt small quantity generator Hazardous Waste Program	Solid Waste Mgt. Committee	Ongoing	$0	
8	Continue antifreeze recycling program	RC HHW Facility	Ongoing	$0	
TOTAL				$50,000 /yr	

SPECIAL WASTES

Chapter 12

CHAPTER 12

SPECIAL WASTES

INTRODUCTION

The majority of special wastes generated in Riley County are in the form of industrial waste generated from industrial or manufacturing processes. These wastes are often incompatible with wastes disposed of at sanitary landfills, thereby requiring special handling apart from the mixed municipal waste stream. Uncontrolled disposal of industrial wastes in sanitary landfills (co-disposal) increases the potential for groundwater contamination due to the chemicals and heavy metals commonly found in industrial wastes.

The KDHE co-disposal program requires prior approval of the disposal of special wastes by the Kansas Department of Health and Environment and the owner of the landfill in which the waste is to be disposed. A discussion of the types of special wastes generated in Riley County, the current management practice for each, and future management practices follows.

INDUSTRIAL WASTES

This program requires the waste to be reviewed for disposal at a sanitary landfill by the Kansas Department of Health and Environment and the owner of the landfill. Based on the waste's characteristics, those wastes denied must be managed with another method appropriate for that particular waste. Other management alternatives include:

- disposing of the waste as a hazardous waste
- changing the industrial process that produced the waste to eliminate contaminants
- finding alternative uses for the waste

BATTERIES

Vehicle batteries contain lead and acid that can leak into the food chain and cause poisoning. Because of this reason it is necessary to keep batteries out of landfills. Vehicle batteries in Riley County are handled through local recycling outlets that accept batteries from anyone. They have also become acceptable at the Riley

County Household Hazardous Waste Facility. All other batteries, except alkaline batteries, also endanger the environment when disposed of through the means of a landfill. Further discussion of the disposal of all types of batteries is included under the section on Household Hazardous Waste (Chapter 11).

CONSUMER ELECTRONICS WASTE

Consumer Electronics Waste (eWaste) has quickly become one of the fastest growing waste types within the average municipal waste stream. This growth is largely a result of the speed with which new technologies are created as well as the speed with which a given technology can become obsolete. At the same time, limited study and public information exists concerning proper disposal of eWaste. Recycling efforts are limited due to few financial incentives as well as minimal federal regulations with regard to eWaste. EPA studies have shown that while eWaste has grown quite rapidly as a percentage of the waste stream, recycling efforts have generally been declining as a percentage of disposal options for eWaste. Often eWaste items will be stored or 'housed' for an intermediate period of time before destruction, reuse or recycling.

Within Riley County there is a concern with eWaste. Entities within the county such as KSU and Fort Riley present potential for large quantities of eWaste and as a result programs have been established, and have been active since September of 2005. The program allows for collection through 'Howie's Recycling as well as through KSU, both of which have facilities at which eWaste items may be dropped off.

WHITE GOODS

White goods (appliances) are accepted by weight at the Riley County Solid Waste Facility and are picked up by a local contractor approximately once a year. This contractor takes the baled material to a hammer mill to be shredded and recycled. The Riley County Solid Waste Facility charges a fee for the acceptance of white goods, including those which contain Freon. Other outlets are available for disposal of appliances and/or removal of Freon. Located in the vicinity of the white goods collection site is the scrap metal collection site which exists to encourage the separation of recyclable metals from the waste stream. Scrap metal is collected by a private contractor for recycling purposes at least annually.

WASTE TIRES

Since 1991, legislation has banned the disposal of waste tires in landfills. The Riley County Solid Waste Facility accepts tires for a fee and contracts to have them removed. Also in the community, local businesses collect tires from the public for a fee and ship them for re-manufacturing.

BIO-SOLIDS (SLUDGES)

LIME SLUDGES

Lime sludge generated by the local POTW (Publicly Owned Treatment Works) is managed by the City of Manhattan. The City disposes of the lime sludge on a site located southeast of Manhattan. The site is permitted in conformance with KSA 65-163 for the control of water pollution from water treatment residues.

SEWAGE BIO-SOLIDS

The Manhattan Wastewater Treatment Facility (WWTF) is located on U.S. Highway 24, east of Manhattan. The WWTF is a 10 MGD, complete mix, activated sludge facility designed to utilize aerobic bacteria to convert sanitary waste to a more stable bio-solid sludge material. This is accomplished through operational control of oxygen, sludge age, and wasting stabilized bio-solids. These concentrated bio-solids are sent to the Manhattan sludge farm, located northeast of the Fairmont Heights Addition, where a crawler tractor injects the material into the soil below the surface. The bio-solids produced at this facility, which are approximately two tons per day, are utilized as a soil amenity for various seasonal crops.

MEDICAL SERVICES WASTE

These wastes were formerly separately handled by hospitals and disposed of in special incinerators operated by the hospitals, under the guidelines for disposal of such waste from medical facilities established by the Kansas Department of Health and Environment, until the incinerators were decommissioned on September 21, 2003. The current method of medical waste disposal involves contracting a private firm to properly dispose of medical waste in the state-prescribed fashion.

FACILITIES

Riley County medical facilities as well as other companies in the surrounding area were considered in the writing of this section. According to state regulations, medical services waste should be segregated from other solid wastes at the point of origin. Facilities in the community that produce medical services waste are: hospitals, veterinary clinics, medical labs, doctors' offices, funeral homes, the Biomedical Center, Kansas State University, and the Health Department.

TYPE OF MEDICAL SERVICES WASTE

There are generally four categories of medical waste for segregation including Biohazardous, Pathological, Trace Chemotherapy and Pharmaceutical. What comprises each is outlined below:

Biohazardous:

- Any infectious waste
- Any visible Blood including items such as gloves, tubing and bandages.
- All IV tubing
- Cultures
- Contaminated Personal Protective Equipment
- Closed sharps disposable containers which contain needles, staples, ampules or broken glass

Pathological Waste

- Tissues
- Organs
- Body Parts (except for teeth)
- Items removed during surgery or autopsy

Trace Chemotherapy

- Gloves, Tubing, and Wipes
- Personal Protective Equipment such as gloves and gowns
- Empty syringes and needles

Pharmaceutical Waste

- Pharm Waste including pills, injectables, and antibiotics
- RCRA (Considered a Hazardous Waste) including Bulk Chemo, Hazardous Medicine, and P, D or U Listed Drugs

DISPOSAL

Medical waste must be disposed of in a different manner than MSW. Any medical services waste must be marked as biohazard waste. Sharps must be boxed or put in rigid, puncture proof containers. Other medical services waste may be stored using the red bag system (stored in specially made red bags with the biohazard symbol) or other biohazard containers. Material that is sterilized may be taken to the MSW disposal facility. Medical services waste must be disposed of in accordance with state regulations. Medical waste is now contracted out to private firms for disposal according to state guidelines.

Kansas State University also currently contracts with a private contractor to dispose of medical services waste. The University has an accumulation point where the waste is packaged and then picked up by a private contractor once a month. No medical waste is incinerated on campus.

The Riley County Health Department provides a Sharps Disposal service within the county to assist with the proper disposal of private medical waste. These private medical wastes include wastes associated with self-care, such as "sharps" associated with blood testing and injectable medications. The program involves residents purchasing a "Sharps" box through the Riley County Health Department and using it to dispose of those types of medical wastes. The "Sharps" box is returned to the Health Department and disposed of for a fee. For more information go to http://www.rileycountyks.gov/1277/Medicine-Sharps-Disposal.

Riley County is home to Midwest Medical Waste, Inc, d/b/a Medi-Waste Disposal, a private firm specializing in transportation and disposal of Regulated Medical Waste. Midwest Medical Waste activities are authorized by Kansas Department of Health and Environment Solid Waste Transfer Station Permit #929 which was granted after review of their Application and accompanying Operating, Closure,

Contingency and Site plans. The Riley County Household Hazardous Waste Facility accepts most unused pharmaceuticals such as private prescriptions, excluding controlled substances. Recent studies have shown a potential danger with the "flushing" of unused prescription drugs through public sewer systems, which has made the use of this program all the more important. The Riley County Police Department will accept controlled substances for disposal.

ANIMAL WASTE AND ANIMAL CARCASSES

ANIMAL WASTE

Animal waste and bedding from Kansas State University, local veterinarians, and kennels is taken to the solid waste facility. Some of this waste may be composted on Kansas State University. If any of the KSU Veterinary Medical Center animal waste is diseased it is picked up by a contracting company to be disposed of properly. The local animal shelter adds animal waste to the sewer system if possible, and bags the rest to go to the solid waste facility.

ANIMAL CARCASSES

Animal carcasses from the Kansas State University Veterinary Medical Center are divided into two categories: food animals (such as cows, pigs and horses) and pet animals (typically smaller animals such as cats, dogs and birds). Most food animals are picked up by a rendering company that reuses the animal carcasses. This rendering company also picks up road kill and other farm animals from around the county. Domestic and exotic pets as well as farm animals with certain diseases are digested in the College's alkaline digester. The alkaline digester is discharged to the sanitary sewer. There is no record of the tonnage of animal waste created and disposed of by Kansas State University.

CONSTRUCTION/DEMOLITION WASTES

The disposal of construction/demolition wastes is regulated by the Kansas Department of Health and Environment. Although these types of materials are not required to be disposed of in sanitary landfills, a special permitted landfill is required which is less stringently regulated than sanitary landfills. There are private disposal sites in the Riley County area which accept construction/demolition wastes, however there are no public sites.

FLUORESCENT/HIGH INTENSITY DISCHARGE LAMPS

Fluorescent lamps and high intensity discharge (HID) lamps contain 80% soda-lime glass, 15% aluminum and other metals and 5% phosphor powder and inert gases and a small percentage of mercury and cadmium (prior to 1988). There may be enough mercury in the lamps to cause them to fail the Toxic Characteristic Leaching Procedure (TCLP) and then be classified as hazardous waste. As of January 2000, all large quantities of lamps (100 or more) must be recycled or tested for waste characterization prior to disposal.

The Riley County Household Hazardous Waste Facility accepts fluorescent lamps as well as high intensity discharge lamps. There are several companies nationally that currently recycle fluorescent lamps. The public is discouraged from disposing of fluorescent lamps via the solid waste facility. Riley County recognizes the EPA Green Lights Program as a viable alternative to mercury lamps and therefore encourages local businesses to participate.

USED OIL

Used oil has the potential for devastating effects on the environment if not properly handled. At the same time, however, commercial entities make proper collection and consolidation very viable when resold or reused. The County has established an oil collection program in which homeowners and businesses can recycle used oil and oil filters. The oils are tested and separated according to how reusable they may be and are then collected by a private entity for reuse. Potential for reuse within the County is further discussed in the chapter on Waste to Energy (9) and information regarding quantities is available in the chapter on Household Hazardous Waste (11).

ASBESTOS

Asbestos is an inert mineral fiber. Asbestos use, import, and disposal is regulated by the EPA under the Toxic Substances Control Act. This ubiquitous fiber was used as an insulating, fire-proofing, and cosmetic material in construction. The EPA outlawed all uses of asbestos in construction. There are two states of asbestos according to the EPA, friable and non-friable. Friable can easily be crushed by hand and releases asbestos fibers into the air. Non-friable cannot be crushed by hand but can release fibers into the air if cut, drilled, sanded, or otherwise abraded. Asbestos must be taken directly to the Waste Management, Inc. landfill north of Topeka, or the Hamm Quarry at Perry.

The Riley County Solid Waste Facility accepts the non-friable form of asbestos for proper disposal if brought in separate from the regular solid waste stream. The non-friable asbestos must first be approved for disposal through the Kansas Department of Health and Environment. Disposal of friable asbestos must also first be approved of through the proper KDHE procedure as well as by Hamm Quarry. Proper disposal requires the asbestos to be wetted and double bagged in heavy trash bags prior to acceptance in either situation.

DISASTER WASTES

Disaster wastes within the planning area are part of special wastes in that they are the result of an event which can be anticipated to an extent but not completely prepared for on an annual basis. While natural disaster waste may consist primarily of foliage debris such as trees and bushes and are thus easily disposed of through composting or some other non-hazardous means, particular attention is given to the aspects of natural disaster wastes which represent smaller percentages but could have potentially larger negative impacts, such as household hazardous wastes, construction and demolition wastes, special wastes, etc.

Weather-related events can only be anticipated to an extent, though proper preparation is important in creating a disaster-response effort. Disaster Wastes within the Riley County area will be managed according to the FEMA-approved, Riley County Debris Management Plan, which is maintained by the Riley County Emergency Management Department.

SPECIAL WASTE GOAL

To reduce the volume of and ensure correct management of special wastes.

Solid Waste Management Action/Policy Plan

Special Wastes

No.	Action/Policy Description	Responsible Organization/Agency	Completion Date	Budget	Funding Source
1	Reduce the volume of special wastes being disposed of and ensure correct management of those special wastes that are landfilled	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
2	Industrial Wastes – Encourage the continuation of the current private disposal methods	RC Pubic Works Solid Waste Mgt. Comm.	Ongoing	$0	
3	Automobile Batteries – Encourage the continuation of the current private disposal methods	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
4	White Goods – Encourage the continuation of the current public and private disposal methods	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
5	Waste Tires – Encourage the continuation of the current public and private disposal methods.	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
6	Lime Sludge – Encourage the continuation of the current public/private disposal method	City of Manhattan Solid Waste Mgt. Comm.	Ongoing	$0	
7	Sewage Bio-Solids – Encourage the continuation of the current public/private disposal method	City of Manhattan	Ongoing	$0	
8	Medical Services Wastes – Encourage the continuation of the current public and private disposal methods	Medical facilities	Ongoing	$0	
9	Animal Waste – Encourage the continuation of the current public and private disposal methods	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
10	Animal Carcasses – Encourage the continuation of the current public and private disposal methods	RC Public Works Solid Waste M.gt Comm.	Ongoing	$0	
11	Encourage the continuation of the private construction/demolition landfill system	RC Public Works Solid Waste Mgt Comm.	Ongoing	$0	
12	Consumer Electronic Waste – Encourage the continuation of the current private disposal methods	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
13	PCB Ballasts – Encourage the continuation of the current public and private disposal methods	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
14	Asbestos – Encourage the continuation of the current disposal methods	RC Public Works Solid Waste Mgt. Comm.	Ongoing	$0	
TOTAL				$0	

APPENDIX A

Includes:

- Implementation Schedule & Timeline
- Solid Waste Management Committee Member List

Solid Waste Management Plan Schedule &Timeline
Planning Period: 2014-2024

2014

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April –** Promotion of Earth Day
- **May** - Board of County Commissioners conduct public hearing on five-year review and revised solid waste management plan.
- **June** – Submit five-year review and revised SWMP to KDHE.
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2015

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June** - Annual Review of Solid Waste Management Plan
- **August** – Submit annual review of SWMP to KDHE**September**- Renewal of recycling contract
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2016

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June** - Annual Review of Solid Waste Management Plan
- **August** – Submit SWMP Revisions
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2017

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June -**Annual Review of Solid Waste Management Plan
- **August** – Submit SWMP Revisions
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2018

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June** - Annual Review of Solid Waste Management Plan
- **August** – Submit SWMP Revisions

- **September**- Begin five-year review and update of SWMP
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2019

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **May** - Board of County Commissioners conduct public hearing on five-year review and revised solid waste management plan.
- **June** – Submit five-year review and revised SWMP to KDHE.
- **August** – Submit SWMP Revisions
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2020

- **January** – Conclusion of Annual Christmas tree recycling program, rebid transfer station contract.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June** - Annual Review of Solid Waste Management Plan
- **August** – Submit SWMP Revisions
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2021

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June** - Annual Review of Solid Waste Management Plan
- **August** – Submit SWMP Revisions
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2022

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June** - Annual Review of Solid Waste Management Plan
- **August** – Submit SWMP Revisions
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2023

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **June** - Annual Review of Solid Waste Management Plan
- **August** – Submit SWMP Revisions

- **September**- Begin five-year review and update of SWMP
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

2024

- **January** – Conclusion of Annual Christmas tree recycling program.
- **January/February**- Recycling contract prior year annual payment, waste stream analysis (Solid Waste Management Facility), obtain annual reports from local recyclers in order to calculate recycling rate.
- **April** – Promotion of Earth Day
- **May** - Board of County Commissioners conduct public hearing on five-year review and revised solid waste management plan.
- **June** – Submit five-year review and revised SWMP to KDHE.
- **August** – Submit SWMP Revisions
- **November**- Promote 'America Recycles' Day, Prepare for Christmas Tree Recycling Program
- **December**- Conduct Christmas tree recycling (Until January)

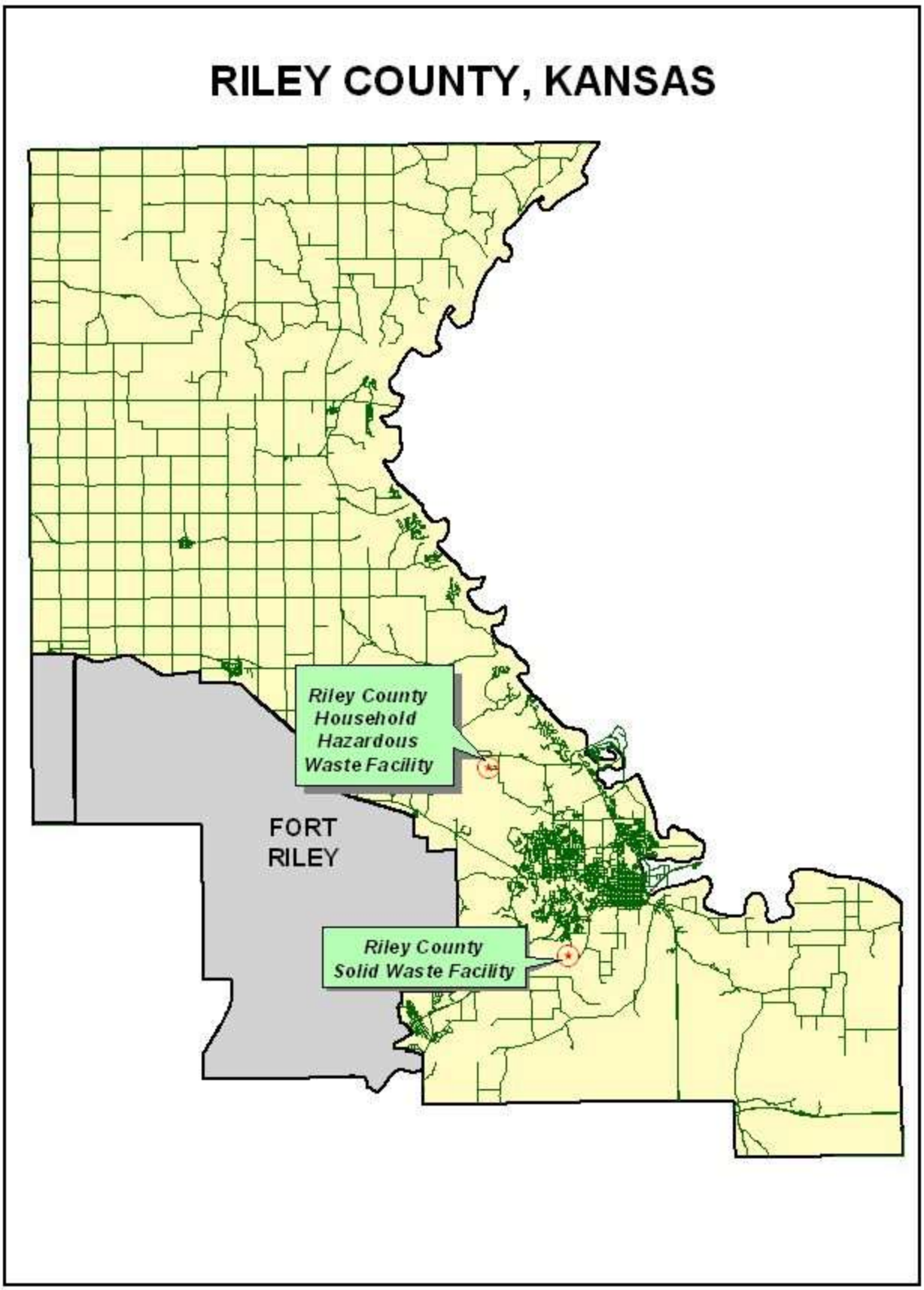
Riley County Solid Waste Management Plan Committee
Current Membership List – 2014 Revision

Name	Entity Represented	Address	Phone Number	Email
Betty Book	City of Manhattan	760 Midland Dr Manhattan KS 66502	(785) 532-6705	bbook@ksu.edu
Kelly Briggs	Private Solid Waste Management Industry	753 Crestline Dr. Manhattan KS 66502	(785) 776-8839	kellyb@bayerconst.com
William Clark	City of Manhattan	1801 Ranser Rd. Manhattan KS, 66502	(785) 539-3427	
Steven DeHart	Other	2030 Tecumseh Rd Manhattan KS 66502	(785) 776-4779 ext. 301	dehart_h2o@yahoo.com
Steve Galitzer	Dept. of Public Safety	108 Edwards Hall, KSU Manhattan KS 66502	(785) 532-5856	galitz@ksu.edu
Leon Hobson	Other	110 Courthouse Plaza Manhattan KS 66502	(785) 537-6330	lhobson@rileycountyks.gov
Dennis Peterson	Unincorporated area of Riley County	6245 Tuttle Creek Blvd. Manhattan KS 66502	(785) 539-3202	dpeterson@rileycountyks.gov
Charly Pottorff	Private Industry	P O Box 1282 Manhattan, KS 66505	(785) 537-9821	
David Shover	Third Class Cities	P O Box 235 Riley, KS 66531	(785) 485-2550	david.shover2@gmail.com
William Spiegel	General Public	103 Power Plant KSU Manhattan, KS 66506	(785) 532-7430	wspiegel@k-state.edu
Jeff Walters	City of Manhattan	1101 Poyntz Ave. Manhattan KS 66502	(785) 587-4539	walters@ci.manhattan.ks.us
Monty Wedel	Recycling Coordinator	110 Courthouse Plaza Manhattan KS 66502	(785) 537-6332	mwedel@rileycountyks.gov
Ron Wells	County Commissioner	110 Courthouse Plaza Manhattan, KS 66502	(785) 565-6213	rwells@rileycountyks.gov
Judy Willingham	City of Manhattan	B.A.E. 147 Seaton Hall Manhattan, KS 66506	(785) 532-2936	judymw@ksu.edu
Howard Wilson	Private Recycling or Scrap Material Processing Industry	625 S. 10th Manhattan KS 66502	(785) 776-8352	howies@kansas.net
John Woods	City of Manhattan	103 Power Plant KSU Manhattan KS 66506	(785) 532-6446	jwoods@ksu.edu
Fran Zerby	Citizen Organization	1830 Ft. Riley Blvd Manhattan KS 66502	(785) 537-7660	zerby@rocketmail.com

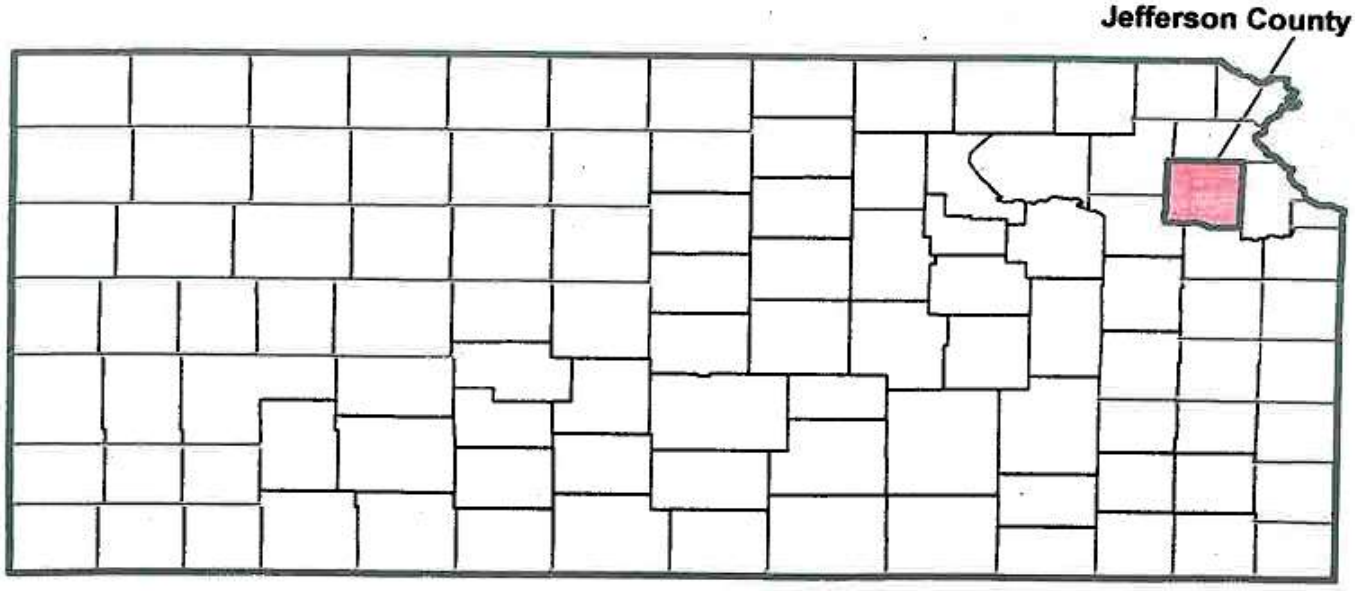
APPENDIX B

Includes:

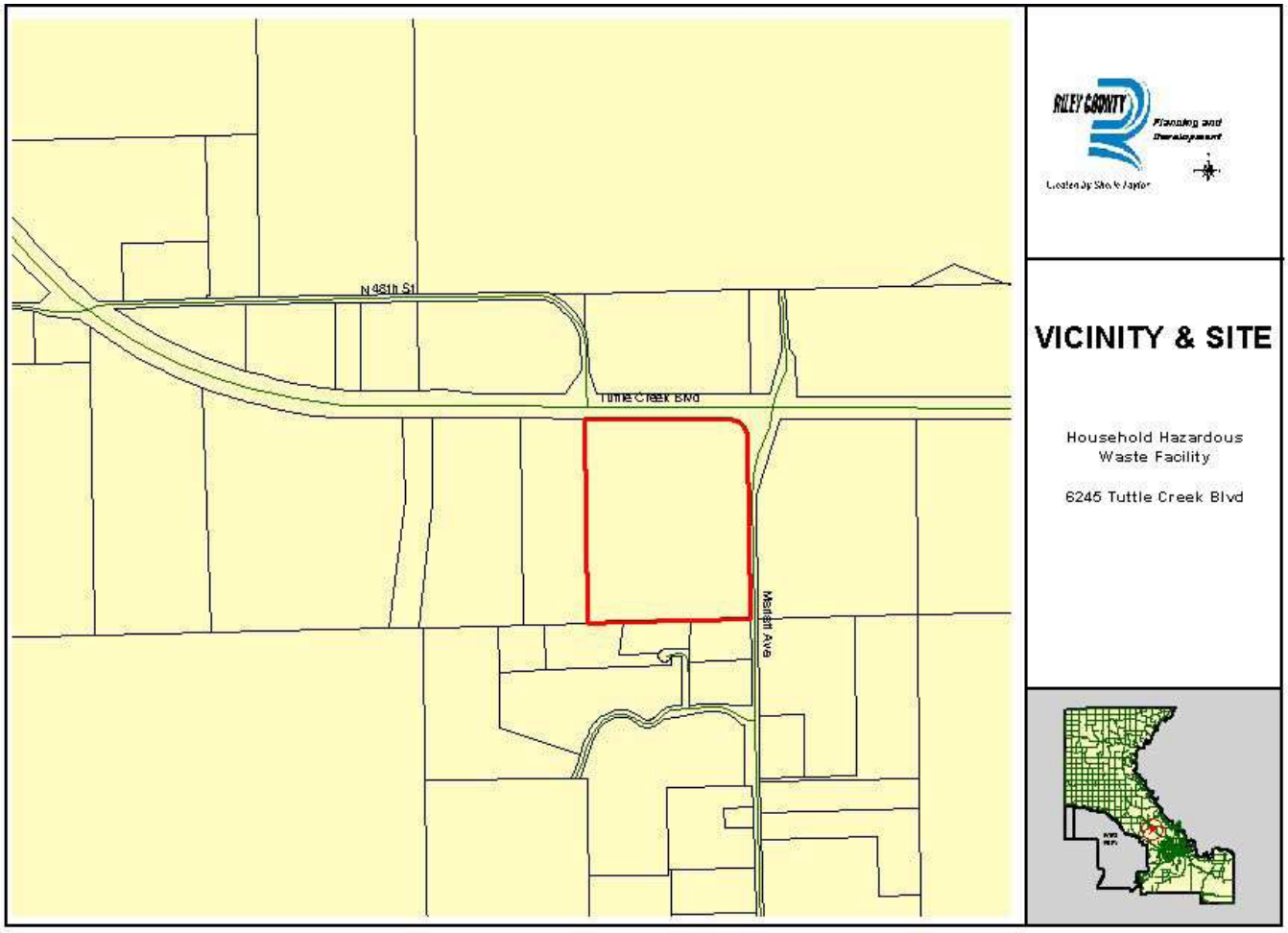
- Relevant Maps:
  - Waste Facility Locations within Riley County
  - Hamm Quarry Location at Perry, Kansas
  - Household Hazardous Waste Facility
  - Solid Waste Management Facility and Transfer Station


RILEY COUNTY, KANSAS
Riley County Household Hazardous Waste Facility
FORT RILEY
Riley County Solid Waste Facility

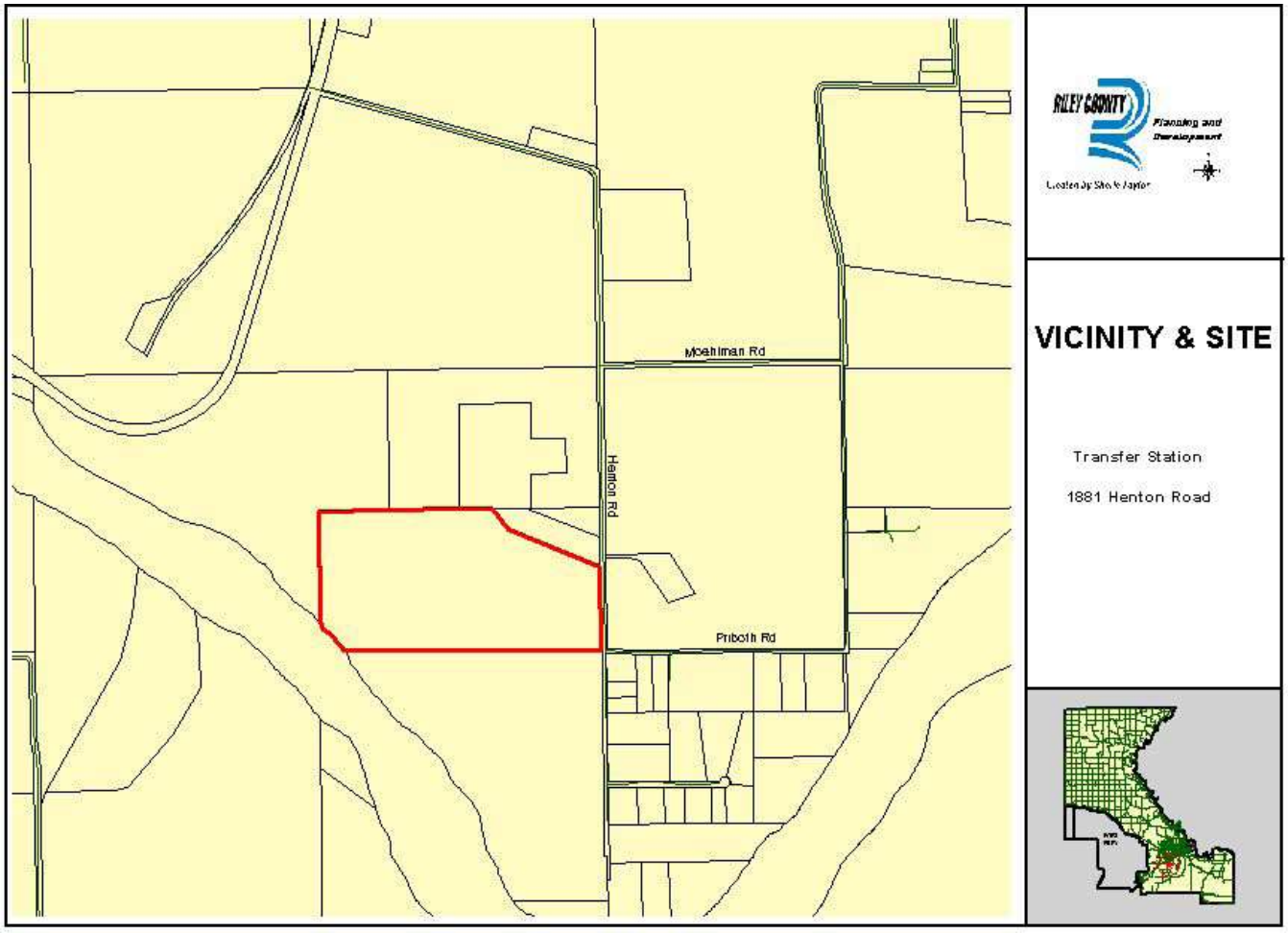
STATE OF KANSAS



Household Hazardous Waste Facility



Solid Waste Management Facility



MANHATTAN, KANSAS

CURBSIDE RECYCLING SURVEY REPORT

A discussion of survey results regarding community attitudes toward a curbside recycling program.

Presented December 1999

Judy M. Willingham
K-State Pollution Prevention Institute

William M. Eberle
K-State Research & Extension-Agronomy

Richard G. Nelson
Kansas Industrial Extension Service

In cooperation with
Riley County and the Kansas Department of Health and Environment

Appreciation is expressed to:

The Bureau of Waste Management,
Kansas Department of Health & Environment
and the Riley County Commission
for funding and supporting this study.

Monty Wedel
And the office staff of the Riley County Public Works Department
for ongoing assistance with this project.

Howard Wilson
for sharing his experience, recycling records, and
knowledge of recycling activities in this community.

Riley County Solid Waste Management Committee
members for their advice and support.

Report text printed on paper containing 20 percent post-consumer recycled fiber.

It is the policy of Kansas State University that all persons shall have equal opportunity and access to its educational programs, services, activities, and materials without regard to race, color, religion, national origin, sex, age, or disability. Kansas State University is an equal opportunity organization.

Manhattan Kansas, Curbside Recycling Survey Report

Judith M. Willingham, William M. Eberle, and Richard G. Nelson[1]

EXECUTIVE SUMMARY

The high rate of surveys returned indicates the topic of curbside recycling service is of interest to the citizens of Manhattan. Seventy-seven per cent of the respondents currently recycle. Seventy-two per cent of the respondents (including both recyclers and non-recyclers) are willing to pay an additional fee for curbside recycling service Storage of recyclables for at least two weeks is acceptable for 70% of the respondents. Although less enthusiastically supported, 84% responding are willing to participate if the recycling pickup is on a different day than their regular trash pickup.

Citizen support for curbside recycling service indicates that community officials should seriously examine the options for initiating curbside recycling as well as explore methods for collecting recyclables in the many apartment complexes.

BACKGROUND OF RECYCLING IN THE MANHATTAN AREA

From May 1990 to June 1991, a pilot curbside recycling program was conducted in the western area of Manhattan. At that time, 1040 single-family residential units were in the area served. Initially 508 participated; by the end of the program, the number of participants had increased to 688 or 66%. Refuse Control provided residents with large (16-gallon) yellow collection bins for holding the commingled recyclables. Residents put the bins out on the curb on one specific day of the week. Because several different refuse haulers operate in the area, this day did not necessarily coincide with the resident's regular trash pickup day.

During the pilot program, 288,000 pounds of waste were diverted from the waste stream or, an average of 14% of the pilot area's waste was recycled. The Riley County Commission paid the cost per capita which varied from $1.62 to $2.13 per month for each pickup site. At the end of the pilot program, the cost of an ongoing curbside recycling program was estimated to be $2 - $3 per month for each household.

Since the end of the pilot program, various private parties have conducted fee-based curbside recycling businesses in the Manhattan area. According to Vince Domenico of Sidewalk Recycling (personal conversation, October 1999), operator of the only recyclable curbside pickup business in operation at the time of this report, materials are collected and taken to Howie's Recycling for recovery. Income from the aluminum (the only saleable recyclable) offsets his gasoline costs. He is a one man operation and fees provide the only income to cover his own labor costs.

A local recycling business, Howie's Recycling, Inc., began taking household recyclables in 1988. Although Howie's has not maintained records of the amount of materials processed through their business, a Riley County subsidy has supported plastic recycling at $.20/pound. A subsidy for newsprint was available in 1993 and 1994 at $40.00/ton. These records are based on documentation provided with applications for both subsidies. When market prices exceeded subsidy amounts, no applications were made; therefore, these figures do not indicate the entire amount of newsprint and plastic recycled. The

[1] [1]Consumer Pollution Prevention Specialist, Kansas State University Pollution Prevention Institute, Extension Land Resource Specialist, Kansas State University Department of Agronomy, and Energy/Environmental Engineer, Kansas Industrial Extension Service, respectively

following table illustrates amounts by year of plastic and newsprint subsidized and removed from the waste stream since 1993.

Table 1. Subsidies for Newsprint and Plastic by Year

	1993	1994	1995	1996	1997	1998
Newsprint	445,240 #	359,832 #	N/A	N/A	N/A	N/A
Plastic	20,450 #	66,652 #	N/A	105,710 #	77,870#	109,610 #

Other businesses that have taken household materials for recycling are Dillon's Grocery Stores and Wal-Mart. Although several charitable groups take reusable items and specific businesses take certain materials such as automotive fluids, at the time of this report, Howie's Recycling, Inc. is the only entity taking a wide range of recyclables from the public in the Riley County/Manhattan community.

DISCUSSION

The pilot program of 1990-91 indicated general support for curbside recycling in the area where the program was conducted; however, the general community attitude had not been evaluated in a systematic way. A curbside recycling study should also assess the interest by area, determine an acceptable fee, examine people's willingness to store recyclables for a period of time, and explore the possibility of pickup days varying from the regular trash pickup day. All these factors are considerations in costing out such a program.

Recycling surveys designed by the U.S. Environmental Protection Agency were examined and found to be directed toward recycling centers, not individual residents. This survey of Manhattan residents was intended to poll attitudes and measure citizen interest in participating in a curbside recycling program, thereby determining potential success for such an effort. Thus the *Community Attitude Survey: A How-to Manual*[1], developed by David Darling and Stan McAdoo, Kansas State University State Cooperative Extension specialists in Community Development, was used to determine sample size and assist with survey design.

The survey tool was viewed as an opportunity to provide community education by prefacing each question on recycling practices with pertinent background information. The goal was to allow responders who read the informative statements to make a decision based on sound data. In addition, it was hoped the information would improve general knowledge about recycling.

In an effort to contain expenses, the document was designed as a double-sided, single sheet with the survey on one side and the reverse containing a short informative paragraph and address face with pre-paid postage. Postage was paid only on those surveys returned. In order to encourage people to fill out and return the survey, it was intended to be simple to read and answer. Only five questions were included. All could be answered "Yes" or "No." Three questions included an additional information line for circling specific items. The comment section allowed additional thoughts to be expressed. Out of 572 responses, 265 contained comments. A copy of the survey form is attached (Appendix I).

METHOD AND RESULTS

According to the *Community Attitude Survey* manual, at least 400 household responses from a community larger than 10,000 households provides a statistically significant sample. The City of

Manhattan provided a mailing list of water utility customers, totaling 11,256. Dr. Darling indicated that the response rate to his recent mail surveys had been around 20%. Using that anticipated response rate, at least 2,000 surveys would need to be distributed in the Manhattan community. *Microsoft Access* was the database selected for entry and analysis of the responses.

Because the mailing list was divided into three cycles, by color coding the surveys, responses could be assigned to one of four general areas. It is noted that one cycle covers two distinct areas that could be easily separated for this survey, making a total of four areas. Surveys were printed on white, pink, and blue paper. Surveys for the smallest area (136 households) were marked with a green stripe. Areas assigned to each color were as follows:

White - central Manhattan
Pink - northwest Manhattan
Blue - southwest to south central Manhattan
Green - northeast corner of Manhattan

The city's mailing list appeared to be somewhat random, but to assure a truly random sample, the total number of addresses was divided by the number of surveys to be mailed, giving an interval for selecting addresses (11,256 ÷ 2,000 = 5.628). Every fifth and then every sixth address were used for mailing. Addresses indicating a commercial business location (such as "Town Center") were skipped in the interest of increasing the number of household addresses in the survey. A total of 2,009 surveys was sent out; 572 responded, giving an overall response rate of 28.5%. This response rate provides a 95% confidence level in the survey results; however there is no way to account for possible bias among responders. Twenty-one surveys were returned as undeliverable. Response rates for each area are shown in Table 2.

Table 2. Response Rate by Areas in Manhattan

	White	Pink	Blue	Green
Number sent	615	656	602	136
Number received	147	228	166	29
Per cent returned	23.95%	34.8%	27.6%	21.3%

Respondents were asked to identify themselves as owner/occupier, landlord, renter, or business operator. This category was most frequently not completed, but when it was, did reflect that most respondents were owners (315 of 387), followed by renters (59 of 387), and business operators (13 of 387).

The survey asked those who currently recycle to answer "Yes" and then to list items recycled. Four hundred forty-one responders indicated that they recycle, with aluminum (381) being the most frequent item listed, followed by newsprint (322), plastic (288), glass (257), "tin cans" (206), cardboard (173), batteries (122), and white paper (101). The Riley County Solid Waste Characterization Study[2] revealed that the waste stream contains 7.6% corrugated cardboard, 4.4% high-grade paper (white paper), and 3.9% newsprint. It would appear the white paper recycling rate could be improved since it is reported to be the least frequently recycled, yet constitutes the same percentage of the waste stream as newsprint.

Responders were asked whether or not they would be willing to pay an additional fee for curbside recycling and if so, how much. Choices ranged from $1.00 to $10.00. Four hundred ten indicated a willingness to pay an additional fee for curbside pickup (some did not specify a fee) and 115 indicated

no interest in paying an additional fee. The number of people expressing their preference for each fee amount is presented in Table 3.

Table 3. Responses Favoring Fee Amounts

	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10
Number of responses	35	84	57	43	118	8	5	18	0	36

Analysis of survey results indicated the mean fee amount was $5.00 and the average fee was $4.26. Two hundred seventy-two recyclers indicated that they would pay a fee of $1.00 to $5.00; 54 recyclers indicated they would pay a fee of $6.00 to $10.00.

Out of the total number of recyclers responding (441), 326 would be willing to pay a fee for curbside recycling. Many responders commented they would like the convenience of curbside pickup rather than periodically taking recyclables to Howie's.

Four hundred seventy-six responded "Yes," to the question of being able to store recyclables for a period of time. They were then asked to circle the amount of time (from one to four weeks) they could store such items. Their responses are listed in Table 4.

Table 4. Responses Favoring Total Storage Times

	Store 1 Week	Store 2 Weeks	Store 3 Weeks	Store 4 Weeks
Number of responses	83	174	47	179

Whenever more than one period of time was circled, the longest period of time was entered in the database. Comments regarding storage dealt with inadequate space (usually renters), a preference for provided containers, and a note that storage for extended periods of time was routine due to the current situation where people must take recyclables to the recycling center. It appears that weekly curbside pickup would be acceptable to everyone, but most (70%) are agreeable to pickup every other week.

People were asked if they would be willing and able to separate recyclables into three categories: papers, metals, and glass. Out of 572 respondents, 512 or 89.5% answered in the affirmative. Comments in this category ranged from this being a routine practice, to a willingness to pay more if recyclables were commingled, to having a limiting disability making respondents unable to do this task.

The last question asked if people would be willing and able to set out recyclables on a day different from their regular trash pickup day. Indications here were that 84% (482 out of 572) would do so. Comments suggested less support for this situation. Several were unsure about being able to remember the correct day of the week; others did not want another day with waste containers on the curb.

COMMENTS

Although respondents' ages or infirmities were not asked, some specifically mentioned that taking trash out to the curb was difficult enough and that carrying recyclables would be another burden. It appears that for the elderly and disabled, there are barriers that limit their ability and interest in recycling.

Several respondents commented that sale of recyclables should pay for the cost of pickup, revealing some misconceptions among the public. Others stated they felt they already paid too much for trash service and recycling offered no financial benefit such as reduced fees.

It is worth noting that out of the total responses received (572), 46% (265) contained extra written comments. Of those written comments, 44.5% (118) specifically registered a positive reaction toward curbside recycling. Curbside recycling is a topic of interest among the citizens of the Manhattan/Riley County community. The abbreviated comments are provided without respondents' identification in Appendix II.

RILEY COUNTY RECYCLING RATES

The survey indicates a significant interest in recycling and most survey respondents indicate that they currently recycle. An effort was made to determine current recycling rates in Riley County. The greatest hindrance to determine specific rates is the lack of detailed record-keeping in the local recycling industry. There is only one major recycling firm located in Manhattan that also serves areas well beyond the boundaries of Manhattan and Riley County. It is difficult to precisely determine the proportion of recycled material that originates from local sources. Howard Wilson, owner of Howie's Recycling, has provided estimates of the monthly amounts of several major categories of material coming from Riley County as shown in the following table. These figures, along with similar categories of discarded waste (not recycled) as estimated in the Riley County Solid Waste Characterization Study can be used to calculate recycling rates for several waste stream components. Those estimates are shown in the following table. The accompanying graph compares estimated Riley County recycling rates with published national recycling rates.

Estimated Recycling Rate for Selected Waste Stream Components.

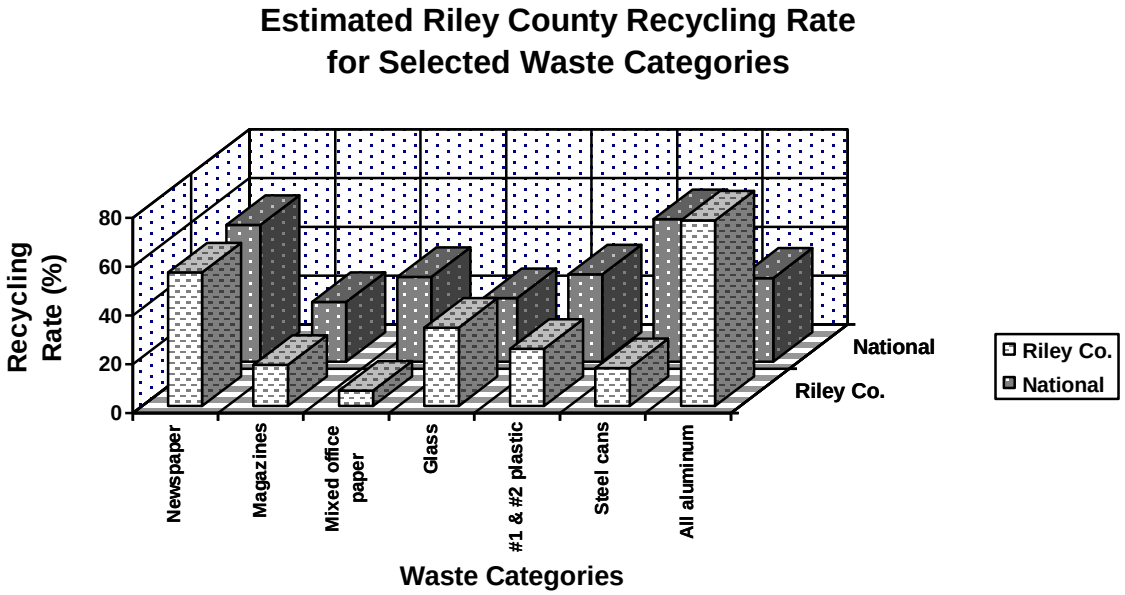
Material	Estimated monthly recycled (pounds)[1]	Estimated monthly discarded (pounds)[2]	Estimated monthly generation (pounds)[3]	Estimated recycling rate (percent)[4]	Comparable national recycling rate (percent)[5]
Newspaper	180,000	155,000	335,000	**54.7**	55.9
Magazines	20,000	98, 950	118,950	**16.8**	24.4
Mixed office paper	30,000	442,750	472,750	**6.3**	34.6
Glass	60,000	126,733	186733	**32.1**	26.0
#1 & #2 plastic	10,000	33,133	43,133	**23.2**	35.6
Steel cans	8,000	43,883	51,883	**15.4**	58.2
All aluminum	110,000	34776	144,767	**76.0**	34.2

1 Estimated material from Riley County sources by Howie's Recycling, Manhattan, KS.
2 Based on Riley Solid Waste Characterization Study.
3 Sum of recycled and discarded.
4 Divide recycled by generated.
5 From: Characterization of Municipal Solid Waste in the United States: 1997 Update. U.S. Environmental Protection Agency.

Nearly all Riley County recycled material in the above categories is handled by Howie's Recycling. Therefore, comparing to measured discards should provide a fairly accurate estimate of recycling rate for those selected material for which information is available.

However, adequate information is unavailable to make estimates for some other common materials. For example, Howie's Recycling estimates that the firm handles about 98,000 pounds of old corrugated cardboard each month. Data show that 305.799 pounds of Riley County OCC discarded through the Riley County Transfer Station monthly. However, large quantities of OCC are baled on site and recycled directly by generators, such as large grocery and department store chains. That amount of that OCC recycled is not easily available. White goods (large appliances, etc.) is another category that is difficult to determine recycling rates. All of the white goods taken to the Riley County Transfer Station are processed by a scrap dealer. However, many appliances are transported to a number of locations, some out of the county, for which records are not kept. Even the figures for aluminum have some limitations because they do not account for cast and extruded aluminum handled by metal scrap dealers in Riley and nearby counties.

Because of insufficient data for other waste categories it was not possible to calculate an overall recycling rate for Riley County. Further detailed study is needed to better determine precise recycling rates for a wider variety of recycled materials. That will require a significant amount of cooperation on the part of recycling materials handlers.



CONCLUSION

The high rate of surveys returned indicates the topic of curbside recycling service is of interest to the citizens of Manhattan. Survey response was highest in northwest Manhattan. Seventy-seven per cent of the respondents currently recycle. White paper is least frequently recycled. Seventy-two per cent of the respondents (including both recyclers and non-recyclers) are willing to pay an additional fee for curbside recycling service; a fee range from $1.00 to $5.00 is acceptable to 48%. Most have no difficulty in storing or separating materials. Storage of recyclables for at least two weeks is acceptable for 70% of the respondents. Although less enthusiastically supported, 84% responding are willing to participate if the recycling pickup is on a different day than their regular trash pickup.

RECOMMENDATIONS

Local officials should explore options to provide citywide availability of curbside recycling. Two possible means of providing curbside recycling might be to establish a fee-supported municipal service or to encourage existing private haulers to provide the additional service. Encouragement could take the form of privileges, reduced fees, subsidized containers, etc. Conversation with the refuse hauling companies should generate more options.

Very limited records have been kept regarding the amount of recycled materials and their source. In order to determine a more accurate picture of recycling rates for various materials and better analyze the recycling program, record keeping must be implemented.

Howard Wilson, owner of Howie's Recycling, indicates that his present facilities are adequate to handle as much as ten times the existing amount of recyclables. Off-loading materials generated by a curbside pick-up program might involve some reorganization. Mr. Wilson and any other operator of a recycling business should be included in the discussion of options.

An interim measure to serve more recyclers was mentioned in several comments. Mobile recycling centers could be located in convenient spots around the city at designated times on the weekends. The units should be manned during operation. The Riley County Household Hazardous Waste Trailer is a similar concept that has become a model of success. This kind of operation would need to make arrangements for receiving materials with Howie's and any other operator of a recycling business.

Whatever service is provided must be advertised & promoted throughout the community. Even though Howie's Recycling has been in business for over ten years, several comments indicated unawareness of the operation. Establishing a local government hot line with current information on all recycling options (dates, times, locations of mobile unit) would be useful. This is similar to the Manhattan Parks and Recreation updated recording of the status for softball games. Utility bills, the cable television city information channel, and the recycling directory are existing means of promotion.

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Report of the City of Manhattan

Mayor's Recycling Task Force

As a nation, more than 409 million tons of municipal solid waste was generated in 2000. That is equivalent to 4.6 pounds of waste per day for every American. However, recycling has become a way of life for many people. Americans now recycle 32 percent of all the waste generated, more than double the rate of 15 years ago. Even in Kansas, where recycling has lagged behind much of the nation, nearly 10 percent of the waste generated is recycled, double the rate of 10 years ago.

Types of recycling programs

There are three types of residential recyclables collection programs in Kansas: buy-back, drop-off, and curbside. Buy-back programs pay for the recyclable material, usually limited to relatively high value materials with strong market histories, such as metals. Drop-off programs require that individuals haul their recyclables to one or more sites where they are consolidated, processed, and marketed. In some cases, payment is offered for a few high value products. While these programs appear to be cheaper for the community, they tend to be relatively inefficient in terms of resource use and usually do not result in high recycling rates.

A rapidly growing type of program is residential curbside recycling. With curbside recycling, residents place their recyclables at the curb and they are picked up for sorting and delivery to a central processing facility. Because of its convenience, curbside recycling usually results in much higher community participation and recycling rates than other types of programs. While curbside recycling appears to be somewhat more costly than buy-back or drop-off programs, it may actually be a more efficient use of community resources compared to hundreds or thousands of individuals hauling their recyclables to recycling centers.

There are more than 9,700 curbside recycling programs serving half of the nation's population. Just 20 years ago there were none. There are 110 curbside programs in Kansas, serving 46 percent of the state's population, where there were none just 10 years ago. At least 25 of the 42 largest Kansas cities have curbside recycling programs in place. A 1990-91 pilot curbside recycling program and a 1999 community survey both indicate a high level of community support for a curbside recycling program in Manhattan. Because of the apparent interest in the community, the Mayor's Recycling Task Force was appointed to study the issues and present recommendations to the City Commission.

The Mayor's Recycling Task Force

Purpose: Explore, evaluate, and propose options to the city commission for the provision of city-wide curbside recycling and/or other recycling programs to serve the community's needs.

The Mayor's Recycling Task Force was appointed and began meeting regularly in August 2001 after the Riley County Solid Waste Committee asked the City Commission to consider curbside recycling. The Task Force reviewed the report presented by the Riley County Solid Waste Committee to the city Commission in February 2001, including the community-wide survey; the results of the pilot program; and a 1999 Riley County Solid Waste Characterization Study. The Task Force gathered information about programs around the state and across the

nation. Input was sought from representatives of University-related large living groups, the waste hauling and recycling industry, and city staff. Examples of Requests for Proposals were reviewed and a RFP outline was developed.

Background Information Summary

Following is a summary of background information gathered by the Task Force during its deliberations.

The current waste/recycling situation:

- Nearly 40,000 tons of waste are discarded through the Riley County Transfer Station each year. About 11,500 tons of those discards come from Manhattan area residential sources. It is estimated that more than 34 percent of those residential discards is material would be recyclable through existing local channels if it can be separated and collected. Newsprint, #1 and # 2 clear plastic beverage bottles, aluminum and steel cans, and glass bottles total about 1,900 tons of the discarded residential recyclables.
- The only major recyclable processing firm in the community is Howie's Recycling, a drop-off center that also offers payment for certain metals. Howard Wilson has indicated that his facilities could handle up to ten times the existing volume in 1999.
- During the 1990-91 13-month pilot program, 508 of 1,040 residential units in the study area initially participated. By the end of the pilot 688 (66 percent) were participating.
- During the pilot program 288,000 pounds of material were recycled.
- Refuse collection is currently done by seven private firms licensed to operate in the community. None of them offer curbside collection of recyclables.
- Small waste haulers are concerned that being required to also collect recyclables from their customers would present a financial hardship.
- An underlying community philosophy has been that new waste/recycling initiatives should do minimal harm to the individual private waste hauling firms.

Community attitudes:

- 77 percent of respondents to the 1999 survey indicated that they now recycle one or more materials.
- 72 percent said they would be willing to pay an additional fee for recycling. 74 percent of those currently recycling would be willing to pay an additional fee.
- Of those willing to pay an additional fee, the most common response was $5 per month. 87 percent of the responses selected fees from $1 to $5 per month. The rest indicated a fee of from $6 to $10 per month.
- 84% of respondents would be willing to set recyclables at the curb on a different day than their regular trash pickup.
- An informal survey of sororities and fraternities at K-State showed that most of those responding are very interested in participating in a curbside program and would be willing to pay a small monthly fee for the service.

Types of curbside collection and financing:

- Curbside recycling collection in other communities is usually done by city government, private firms under contract to city government, or, in a few cases, private firms specializing in recyclables collection and processing.
- Curbside service is usually limited to residential units (usually single family or other units that receive individual curbside refuse pickup). Separate types of recycling pickup are usually implemented for multi-family and commercial entities.
- Curbside recycling is often done by the same entity responsible for refuse collection, but in many cases is entirely separate from refuse collection.
- Costs of curbside recycling are usually funded through a fee as part of the city utility bill (whether or not collection is done by the city or by a private firm under contract to the city), from general funds, fees collected with ad valorem taxes, waste disposal tipping fees, or fees charged by private recyclable haulers.
- Participation in curbside recycling is usually voluntary. That is, the service is offered to all residential units in the category being served, but whether or not individuals actually use the service is voluntary. Some cities in the country require recycling participation.
- Payment for curbside service is usually mandatory for all units being served when the service is provided by, contracted by, or required by the city. Payment for service voluntarily provided by individual firms is usually only required for those participating.
- Mandatory payment is usually necessary for curbside recycling to be successful.
- Of the 110 curbside programs in Kansas, 11 are mandatory pay and participate, 42 are mandatory pay with voluntary participation, 32 are voluntary pay and participation, and 23 are unknown.
- The per capita cost of the Manhattan pilot program varied from $1.62 to $2.13 per month. It was estimated that an ongoing program would cost $2 - $3 per household per month.
- Information gathered from around the country shows ranges in costs from $1 to $2.50, with some as high as $5 per residence per month. The lower costs tend to be those entities where curbside collection is done by the same entity that is currently doing refuse collection. The higher charges tend to be associated with private curbside collectors offering the service as a subscription voluntary pay/participation program.
- Informal information obtained from private firms in the state indicate that a city such Manhattan might anticipate bids in the range of $2.50 to $4.00 per unit per month for stand-alone recycling service by a private contractor. However, that range would drop to $2.50 to $3.00 per month if the same firm is also collecting the refuse.
- There will be some administrative costs to the city if the city is involved in collecting and disbursing funds in support of the program.
- It will be necessary to investigate any legal considerations to the city's participation in a curbside recycling collection or financing program.

Conclusions of the Task Force

After reviewing all of the available information, the Task force has decided to recommend that:

- The City of Manhattan should move to implement a residential curbside recycling program for the city.
- The initial phase of the program should be limited to single family residences or other residential units of the type currently served by individual curbside trash pickup.
- Later phases of the program can address multi-family and commercial recycling service.
- Participation in the program will be voluntary but payment for the service must be mandatory for all of the above identified residential units.
- Materials to be recycled include: newsprint, #1 and #2 clear plastic beverage containers, aluminum beverage cans, steel cans, and brown, green, and clear glass bottles

Options for financing and implementing the program

The Task Force identified several options for implementing/financing a curbside recycling program. Those options include:

1. City fee on utility bill.
2. Private sector collection of recyclables.
3. Ad valorem tax or fee on property tax bill as source of funding
4. County solid waste tipping fee as a source of funding.
5. Franchise fees charged to refuse haulers.
6. Mandatory fee added to trash hauling bills.
7. City take program over and operate as a municipal service.

Options 2, 4, 5, and 7 were eliminated because they represented inefficiencies and inequities, or created undue hardships for refuse haulers. Options 1, 3, and 6 are all options that should be considered as potential funding mechanisms for curbside recycling.

City fee on the utility bill. The city would be responsible for collecting fee through the utility billing system. The city would either contract for the service or could decide to provide the service. This would require some alterations to the utility billing system and would result in some administrative costs.

Ad Valorem tax or fee on property tax bill. The city would receive the funds from the tax payments and either contract for or provide the service. It may result in some small administrative costs for the city.

Mandatory fee added to trash hauling bills. The city would require that all refuse haulers be required to assess the recycling fee as a condition for operating in the city. The city would receive the funds forwarded from the private refuse haulers and would either contract for or provide the service.

There are too many variables to accurately determine the precise cost of the program beyond the information included earlier in this report. However, based on similar activity around the state, it appears that there are likely to be several contractors that would have interest in the program. The Task Force recommends that a Request for Proposals be prepared to seek proposals from potential contractors. Contractors might include an existing local refuse hauler, a group of local refuse haulers, an outside contractor, or the city, itself, could choose to prepare a proposal to provide the service. The Request for Proposal would lay out very specific requirements and specifications for the program, including the items to be recycled and the responsibilities of the contractor.

Recommendation

The Mayor's Recycling Task Force recommends that the City Commission move to implement a curbside recycling program in the city of Manhattan, select an option for funding the program, and approve the development of a Request for Proposals for provision of curbside recycling service to individual residential customers.

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REQUEST FOR SERVICE PROPOSALS

COLLECTION, PROCESSING, AND MARKETING OF RESIDENTIAL RECYCLABLE COMMODITIES

CITY OF MANHATTAN
KANSAS

AUGUST 2002

RESIDENTIAL RECYCLABLE COMMODITIES

REQUEST FOR SERVICE PROPOSALS

I. INTRODUCTION

The City of Manhattan, Kansas is requesting service proposals from Firms interested and qualified to Collect, Process, and Market Residential Recyclable Commodities from within the Corporate Limits of the City of Manhattan, Kansas. Responses to this Request for Service Proposals (RSP) shall include pricing for the recycling service.

Manhattan, settled in 1855, is located in the heart of the scenic Flint Hills in northeast Kansas. Home of Kansas State University (21,000 students) and Fort Riley (12,000 soldiers), the community encompasses over 11 square miles and has an estimated population of 45,000.

In February of 2001, the City received a request from the Riley County Solid Waste Management Committee to form a task force to further research and recommend a plan for implementing a residential curbside recycling program in the City. The request from the Solid Waste Management Committee was based on a survey conducted by the Committee. The survey indicated that approximately 60 percent of the respondents would be interested in participating in and paying for a curbside recycling program.

In August of 2001, the Mayor appointed the Recycling Task Force, which included city administration, solid waste experts, representatives of Kansas State University, a local trash hauler, and representatives of the Solid Waste Management Committee. The Task Force met throughout the rest of 2001 and January and February of 2002. The efforts of the Task Force culminated in a presentation to the City Commission in February of 2002.

The Task Force recommendation to the City Commission was to create a mandatory pay/voluntary participation residential curbside recycling program that would include the collection of specific materials either weekly or bi-weekly. The Task Force further provided funding options to the City Commission for their action.

As part of the presentation, the Task Force recommended the creation of a request for services for a residential curbside recycling program. The City Commission accepted the concept of a service proposal and directed City Administration to draft such document.

II. DEFINITIONS, TERMS, AND CONDITIONS

Definitions

In order to simplify the language throughout this request, the following definitions shall apply:

CITY OF MANHATTAN – Same as City.

CITY COMMISSION – The elected officials of the City of Manhattan, Kansas given the authority to exercise such powers and jurisdiction of all City business as conferred by the State of Kansas.
CONTRACT – An agreement between the City and a Supplier to furnish supplies and/or services over a designated period of time during which repeated purchases are made of the commodity and/or service specified.
CITY – The government of the City of Manhattan, Kansas.
FIRM – The successful Firm of this request.
RSP – Request for Service Proposal.
SOURCE SEPARATION – Involves the separation of materials, by the generator or source of waste, from the municipal solid waste stream prior to the collection of the remaining Municipal Solid Waste (MSW). Examples of materials which may be "source separated" are yard waste, glass, aluminum, paper, plastics and various metals.

Reservations
The City reserves the right to accept or reject any or all Proposals as a result of this request, to negotiate with all qualified sources or to cancel, in part or in its entirety, this Request if found in the best interest of the City. All Proposals become the property of the City of Manhattan.

Reimbursements
There is no express or implied obligation for the City of Manhattan to reimburse responding Firms for any expenses incurred in preparing Proposals in response to this Request and the City of Manhattan will not reimburse responding Firms for the these expenses, nor will the City pay any subsequent costs associated with the provision of any additional information or presentation or to procure a contract for these services.

Certification
Proposals must be completed and submitted as required in this document.

Communication
The City shall not be responsible for any verbal communication between any employee of the City and any potential Firm. Only written requirements and qualifications will be considered.

Payment Terms
Invoices must be submitted by the vendor in duplicate to the City of Manhattan, Finance Department, 1101 Poyntz Avenue, Manhattan, Kansas 66502. All invoices will be paid in full within 30 days after satisfactory delivery of services and billing.

Negotiations
Negotiations may be conducted with responsible Firm(s) which submit Proposals that are reasonably likely to be selected. All Firm(s) reasonably likely to be selected based on criteria set forth in this Request may be given an opportunity to make a presentation and/or interview with the City designated Selection Committee. Following any presentation and/or interviews, Firms will be ranked in order of preference and contract negotiations will begin with the top ranked firm. Should negotiations with the highest ranked firm fail to yield a contract or if the firm is unable to execute said contract, negotiations will be formally ended and then commence with the second highest ranked firm, etc.

Disclosure

Following award of a contract or rejections of all proposals, all information provided by Firms will be considered open records.

Award of the Contract

Award of the contract shall be made to the responsible Firm whose proposal is determined to be the lowest evaluated offer resulting from negotiations, taking into consideration the relative importance of price and other factors set forth in this Request.

III. GENERAL INFORMATION

General Basis of Service

A. The City of Manhattan is requesting proposals from qualified Firms for collection, processing and marketing of source separated recyclable commodities under one-year contracts renewable for up to five years. These commodities would be collected from approximately 9,000 residential single-family homes and duplexes located within the city limits. However, with the Opt-Out Clause option, we estimate that 20-25% of the households may choose to opt-out (based on the experience of the City of Overland Park, Kansas who operates a similar program). This would mean that the number of homes to be collected would be approximately 6,750. The collection work will generally consist of the collection of ***containerized*** recyclables placed at curbside by the customers. The recyclable commodities to be collected will include newspapers, aluminum beverage cans, steel cans, clear, brown and green glass food and beverage containers, and non-pigmented (#2 HDPE) or clear (#1 PET) plastic beverage containers. Separate cost estimates are being requested for both ***weekly and biweekly services***.

B. The City of Manhattan currently has no recycling collection services. The estimated annual total of the designated recycling commodities that could be collected based on a 1999 Riley County Waste Characterization Study and updates is about 1,900 tons. A best guess estimate per commodity for the first years of collection with initial expected participation rates based on other similar size cities with recycling services are as follows:

Commodity	**First Year Estimated Tonnage**
Aluminum	10
Steel	15
Clear Glass	40
Brown Glass	30
Green Glass	20
Plastic	20
Newspaper	500

C. The work to be performed under the contract agreement shall consist of the services defined in this scope of work and all supervision, supplies, equipment, labor, insurance and all other items necessary to complete said work in accordance with a contract document.

D. Should the City develop other services or programs resulting in commodities which may be recycled, including but not limited to apartment, multi-family, and commercial recycling, the City shall have the option to market these commodities or negotiate for collection services through the chosen Firm by addendum to the Agreement, but it is not obligated to do so.

E. The City is in a changing economy. Aforementioned household estimates are based on today's situation. Firm is to understand that the number of households may or may not increase over the term of the agreement.

Opt-Out Provision

Prior to commencement of the recycling program, the occupants of the residential dwellings to be served shall be given a one-time opportunity to opt-out of the program. This opt-out provision shall be governed by the following requirements:

A. It shall be the responsibility of the Firm to establish and maintain a customer list to which opt-out notices are to be sent and to arrange for the sending of such notices and recording the responses of the opt-outs. The City will cooperate with and assist the Firm in the establishment and maintenance of the customer list.
B. Only the current resident of the dwelling unit at the time of notice may exercise an opt-out option.
C. Persons may opt-out only during a 30-day period to be set by the Firm and approved by the City. No opt-outs postmarked after the closing date will be honored and failure to properly exercise an opt-out will result in that resident being obligated to pay the applicable fees for the period of this Agreement.
D. If a dwelling unit, for which the occupant has opted-out, shall have a new resident occupy the premises during the subsequent period of the Agreement, that new resident may elect to participate and the Firm is required to provide services.
E. If such change of occupancy shall occur where the opt-out provision was not exercised, the new resident, upon notification of such fact to the City or the Firm, is entitled to the same notification as the original occupant; provided, however, that the new resident may be required to demonstrate that they were not the occupant at the time of original notification.
F. Prior to instituting collection activities for an unpaid bill, the Firm shall determine that the person against whom legal action is being taken was the occupant at the time of notification and was sent a notice by regular mail. Proof of receipt shall not be required.
G. The form, content and method of notification of residents shall be proposed by the Firm and approved by the City.

Term of Contract

The term of this contract will be one-year contracts renewable up to five (5) years beginning ?.

IV. SCOPE OF WORK

Notice to Make Examinations

The Firm shall become informed of all conditions under which the work is to be performed and all other relevant matters that may affect both the quality of work and the quantity of labor, equipment and commodities needed.

Proof of Recycling

A. The Firm will certify to the City that all recyclable commodities that have value are in fact sold to certified recycling vendors, brokers, toll end users or recycling manufacturers.
B. The Firm will guarantee that in no case will the uncontaminated recyclable commodities collected under this contract be "landfilled" or disposed.

City's Right of Inspection

A. The City reserves the right to inspect the facilities, equipment, personnel and operations of the Firm and any approved subcontractors to assure itself of the appearance, sound business operations and compliance with contractual provisions of the Firm.
B. The City reserves the right to review the records kept on the recyclable commodities collected from the City under terms of this contract.
C. The City agrees to notify the Firm at least twenty-four (24) hours prior to such inspections.

Collection Methods

A. The Firm will be required to collect source separated recyclable commodities that have been placed at the curbside by City of Manhattan residents. The recyclable commodities will be inside containers approved by the City that will be provided to the customers by the Firm. The containers a) will be made from recycled content, and b) have an identifying recycling mark imprinted on the container.
B. The Firm will have the option of collecting the recyclable commodities in either trucks and/or trailers. We initially estimate between 10 and 15 tons of recyclable commodities being collected per week. The Firm shall provide adequate personnel and equipment to be used in the collection and processing operations so that collection will be completed during the regular workweek.

Distribution of Recycling Containers to Customers

A. Notice of new households to be added to collection schedule and routes will be sent to the Firm as they are added to the City's utility billing system. Recycling collection will begin one week after delivery of recycling containers and instructions to new customer by Firm. New households must be serviced within one week of receipt of notice.
B. It will be the responsibility of the Firm to provide additional containers to the customers as needed by providing a container request/repair service by telephone. Containers requested should be delivered or repaired within one workweek of request. Firm should maintain an adequate inventory of recycling containers at its facility to meet the service delivery requirements as specified.

Collection Routes

The recycling service will be conducted and completed during the regular workweek unless otherwise approved by the City. The Firm must notify customers of collection days. If the Firm elects to change the collection method or collection days already in effect, customer notification must be provided to each household at the expense of the Firm. Each route must be collected regardless of weather conditions, subject to the contract agreement provisions concerning severe weather and with the exception of approved holidays or City designated emergencies.

Holidays

In the event that an official holiday recognized by the City of Manhattan falls on a scheduled collection day then collection services may be canceled on that date. When a scheduled collection day is canceled due to the holiday, the Firm shall notify the affected customers of the holiday taken by the Firm and the Firm shall notify the affected customers of a make-up collection day. The notification shall occur no less than forty-eight (48) hours in advance of the holiday. The City Representative must approve the notification and the method of all such notification in advance.

Severe Weather

Collection activities are expected to be provided regardless of weather unless otherwise approved by the City Representative. The City of Manhattan may suspend or the Firm may request suspension of collection activities in the event of a flood, tornado, or other act of God, or force Majeure, which creates a state of emergency.

Missed Collections

If a customer notifies the Firm that his recycling collection has been missed, then the Firm is responsible for collecting the missed recycling commodities. Any missed collection, whether real or alleged will be the collection responsibility of the Firm. The Firm is responsible to collect the missed recyclables within two working days.

Delays

It shall be the responsibility of the Firm to notify the City Representative within one working day of an unscheduled delay. This notification will include a proposal on how the scheduled day's work will be performed.

Damages

Any damage to property whether public or private incurred during the operation of recycling collection services shall be the sole responsibility of the Firm. This includes repair/replacement of items such as fences, mailboxes and gas or water meters. The City of Manhattan shall make the final decision on responsibility for property damage in communication with the Firm's insurance carrier.

Appearance of Equipment/Personnel

The appearance of recycling collection service equipment and personnel is important to the City of Manhattan as they are seen on a daily basis by the customers and citizens of the City. The Firm's and/or subcontractor's equipment and personnel must comply with all applicable federal, state and local laws.

It is recommended that the Firm provide an established plan to publicly identify equipment and personnel providing the recycling service.

Processing Site Facility

The Firms processing sites must have sufficient capacity to handle the volumes of recyclable commodities collected under this contract. The sites must be able to process all recyclable material in a safe and efficient manner in a reasonable amount of time. The sites/facilities do not have to be solely dedicated to this contract.

The City reserves the right to inspect processing sites/facilities. The Firm and/or subcontractor must operate the sites/facilities in accordance with all applicable federal, state, and local laws.

Recyclable Commodities

The Firm will furnish all labor, supervision, material, permits, licenses, and equipment necessary to provide collection processing and marketing of the following recyclable commodities:

Required

A Aluminum Beverage Cans (UBC)
B Glass: Clear, Brown, And Green
C Newspapers (ONP)

D Steel food cans (tin cans)
E Plastic SPI Code I (PET) polyethylene terephthalate (beverage bottles)
F Plastic SPI Code 2 (HDPE) high density polyethylene [milk/water bottles (no pigment)]

Optional: Please specify types of commodities that you will agree to collect, process, and market under this contract.

A. White Office Paper
B. Mixed paper -junk mail, paper board, files, Kraft paper bags, and colored office paper
C. Cardboard
D. Other

Commodities may be added to or deleted from the contract by written agreement of the City and the Firm.

Reporting Requirements
The Firm will be required to submit Annual Recycling Activity Reports on the collection processing and marketing of all recyclable commodities.

The report shall include:
A. Amounts of recyclable commodities collected by date, route, and material
B. Summaries of tonnage of all commodities collected by material
C. Summaries of tonnage of all commodities sold by material
D. Other information pertaining to this contract will be provided upon request of the City Representative

Cost Per Household
All Firms will submit information on calculation on the cost per household per month for the operations of this recycling service upon request of the City.

A cost of service per household per month will be billed to customers based on a funding decision by the City Commission. Cost of this service will be negotiated based on this decision.

The Firm will submit monthly invoices for approved number of households at the designated cost per month determined by contract.

Approved actual number of households are determined through City building/development reports and can be updated quarterly by contacting City.

Public Education Funding
To assure that the City of Manhattan waste reduction and diversion goals are met through this Recycling Service Program, the City will administer the marketing public education and awareness programs on recycling. This will also assure that the City is given promotional credit for the program and that the City's logo is properly used.

The Firm in good faith that increased marketing and public education will assure a successful program participation and generate recyclable commodities for sale shall pay the City the amount of

$.25 per household serviced per month for public education, marketing, promotion and advertising of recycling and waste reduction.

Payments will be made every six (6) months beginning with the signing of the contract. The notices and public education administered by the City under this provision do not alter or dismiss any obligations of the Firm to provide notice under other provisions of this Scope of Work.

IV. SUBMISSION REQUIREMENTS:

1. **Title Page:**
    a. Firm name, address, phone number, fax number
    b. Name of Project Director

2. **Required Information:**
    a. Description of the overall qualifications, competency and experience in providing this service and the customer service support.
    b. Proposed human resource requirements.
    c. Minimum number of households required to participate for the Firm to provide the service.
    d. Proposed list of equipment to be used for collection, processing, and marketing of recyclable commodities.
    e. Provide a plan for implementation and sustained operation of the contract.
    f. Collection schedule including dates and times.
    g. Provide a plan for customer service including requests for new and additional recycling bins, complaints, notification of holidays, and missed recycling collection problems.
    h. Provide a plan for quality assurance: reporting, proof of recycling, disposal of residual, contaminated, and not marketable commodities.
    i. Provide price proposals for collection, processing, and marketing services for the residential recycling program. The proposal should be stated in price per household per month based on approximately 9,000 households. The proposal should be stated in price per household per month for approximately 6,750 households based on an estimated 25% opt-out response out of 9,000 available households.
    j. Plans for coordinating with the City on a public education campaign prior to implementation and throughout the course of the program.
    k. Description of other relevant experiences of the Firm.
    l. List of subcontractors and subcontractor responsibilities.

3. **References:**
    List of references that can be contacted, including contact name and telephone number. Emphasize experience in communities of similar size and characteristics.

V. METHOD OF SOLICITATION:

This solicitation will be advertised in the following ways:

- Notice in the *Manhattan Mercury,* the *Junction City Daily Union,* the *Ft. Riley Post*, the *Wichita Eagle*, and the *Topeka Capitol Journal*
- City of Manhattan website and cable channel 2
- Direct solicitation sent to City of Manhattan licensed trash haulers
- Copy of proposal sent to Kansas Business & Industry Recycling Program (BIRP)

VI. DIRECTIONS FOR SUBMISSION:

Five (5) copies of the project proposals must be submitted to arrive no later than 5:00 p.m. on ?. Proposals should be mailed or delivered to the following address:

Sammi Mangus
Assistant to the City Manager
1101 Poyntz Avenue
Manhattan, Kansas 66502

Questions concerning the project should be directed to Sammi Mangus, Assistant to the City Manager, (785) 587-2404, or mangus@ci.manhattan.ks.us. Questions should be submitted in writing at least three days prior to the specified due date of the RSP.

All persons entering into a contract with the City of Manhattan shall be subject to and required to comply with all applicable City, State, and Federal provisions pertaining to nondiscrimination, equal employment opportunity, and affirmative action.