Becker County
Comprehensive Solid Waste Management Plan

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CHAPTER I The Executive Summary

Introduction

Becker County, located in west central Minnesota, has developed a new plan that replaces the Becker County Comprehensive Solid Waste Management Plan approved by the Minnesota Pollution Control Agency (MPCA) in 2002 and extended for an additional five years in 2005. Counties are required by state rules to develop new plans every ten years. This plan is intended to fulfill the state requirement and document the policies and programs which will guide the development and implementation of solid waste programs within the County. This plan also includes Becker County's description of the solid waste abatement programs commonly referred to as SCORE programs.

This plan was developed and completed by Becker County Environmental Services Department Staff under the direction of Steven Skoog, Becker County Environmental Services Director, with assistance from the Minnesota Pollution Control Agency.

Overview

This plan reviews the past and present solid waste management system, solid waste abatement programs and policies, and anticipated solid waste management activities. This plan proposes continuation of the County's current solid waste programs.

Since 2008, Becker County has had meetings with the Counties of Otter Tail, Todd, and Wadena and has developed plans to expand the Perham Resource Recovery Facility. In 2010 the four counties formed the Prairie Lakes Municipal Solid Waste Authority (PLMSWA), a joint powers board made up of commissioner representatives from each of the four counties. The PLMSWA primary focus has been to evaluate the municipal solid waste (MSW) volumes generated in the four counties, to determine the feasibility of purchasing and expanding the PRRF to accommodate current and future MSW streams from the member counties. Additionally, the Counties plan to work together to find better ways to handle noncombustible waste. In June of 2011 PLMSWA acquired ownership of PRRF from the City of Perham. Currently the County solid waste is landfilled but by committing future solid waste to the expanded incinerator the County is handling its solid waste in a manner that is preferred to landfilling based on the state waste hierarchy.

To enable Becker County to send the maximum amount of MSW possible to the PRRF in the future, the County will need to construct a new transfer station that will have the capacity to enable waste to be sorted prior to sending it to the incinerator. Currently, the existing transfer station is inadequate because it does not have a tipping floor to sort waste and does not meet the current State Rules for a permitted transfer station.

The County has a need for a better material recovery (recycling) facility (MRF) to handle source separated recyclable materials. The recycling facility the county currently uses is not large enough to adequately process current capacity being collected. The processing facility is inadequate because it does not have the necessary sorting, cleaning and storage capacity for a greater variety and volume of materials that the County is planning on handling in the future.

In 1990 Becker County placed 45 recycling shed/sites throughout the County, covering a total area of 1,445square miles. Each shed was approximately 8 x 10 feet with 55 gallon plastic barrels in which resident placed recyclable materials. In 1990 the sheds were adequate, but by 2011 the sheds were no longer adequate due to the increased commodities and volumes taken. Each shed had total volume capacity of approximately 7 cubic yard. To achieve the goal of increasing recycling in Becker County, the County held numerous meetings with local government officials and hosted public forums. The County identified the following deficiencies with the recycling program:

- Difficulty of using the recycling 'shed' system.
- Lack of capacity and type of commodities accepted at each recycling site.
- Cost of servicing each recycling site.

- Lack of a processing facility to prepare the recyclables for end markets.

In 2011, Becker County achieved a major goal by designing and purchasing new recycling containers which updated and replaced the 20 year old 'shed/barrel' system. In addition, the County purchased a recycling truck to service the recycling containers, at a total project cost of approximately $500,000. This resulted in a more efficient and user friendly collection system, increasing the volume of recyclables collected through the updated County recycling program by 42% (2011/2012). The new recycling bins have been an enormous success, and that success has brought new challenges with processing due to the increased volumes.

Becker County has spent most of the past twenty-five (25) years developing an integrated solid waste management system that includes reasonably accessible, reasonably priced solid waste management options for its residents, businesses, and visitors. These system components have included extensive planning to determine where would be the best locations for collection and management sites for both recyclable materials as well as materials ultimately needing to be disposed of. The planning process has included evaluation of both long term and short term costs associated with management and disposal options.

Becker County has remained very active in terms of initiating low-tech waste abatement programs and activities. For example, the County has owned and operated a recycling collection, processing and marketing program since May of 2011. Becker County operates 2 compost sites and assists with ten additional local units of government composting sites for yard waste drop-off, the County has sponsored and implemented a regional household hazardous waste program, the county has instituted a concrete recycling program in 2004, and instituted a shingle recycling program in 2010.

The County's existing management system is an integrated solid waste management system that includes the following:

- waste reduction program
- waste education program
- material exchange program
- recycling program
- yard waste management
- solid waste incineration and energy recovery
- land disposal
- tire management program
- major appliance recycling program
- electronics recycling program
- used oil, oil filters, lead acid and dry cell battery program
- household hazardous waste program
- demolition management program
- ordinance and licensing program
- onsite and unauthorized disposal enforcement program

Update Goals

The following are the primary tasks to be addressed in this plan:

- Document solid waste generation and collection rates and associated seasonal fluctuations.
- Document and discuss the result of solid waste implementation efforts.
- Address waste abatement issues and SCORE directives.
- Perform technical and economic analysis regarding land disposal (MSW, demolition debris and Ash) development issues in the County.
- Clarify system planning needs and options for decision makers.
- Generate a Certificate of Need (CON) figure for the planning period.

Chapter 2 will provide background information on the County in terms of geological features, transportation routes, economic development, population distribution and trends, waste characteristics, collection and disposal information. Chapter 3 will provide information on the resource recovery and disposal system. Chapter 4 will focus on the individual elements of the waste management system.

Public Participation

In preparing this plan, the approach has been to involve County decision makers, the public through public education information and forums and solid waste facility staff as much as possible through various stages of completion. The intent has been to generate reaction and response from County individuals and to incorporate this input into the final document. This process has helped to stimulate systematic consideration and discussion among County individuals regarding solid waste issues to be faced now and into the future. It is hoped that the process of generating the Plan will prove to be beneficial to the County, as well as providing the state with the resulting document.

Program Goals

The County has established solid waste abatement goals for a 10-year period. Becker County's 10-year goals are contained in the goal-volume table located in Appendix 1.

Solid Waste Management Programs and Policies

Becker County's goal volume table located in Appendix 1, estimates that the County will need 5,585 cubic yards or 3.46 acre-feet of land disposal capacity for the 10-year planning period, 2013 to 2023.

Waste Reduction

Becker County regards source reduction as its first priority in solid waste management. The County is a positive example to local municipalities, businesses and residents by reducing waste generated from County sources. The County will also provide incentives to encourage waste reduction. The County believes that education is the most effective method of reducing waste generation. Information on Becker County's waste reduction/education programs can be found in Chapter 3, Section 1.

Waste Education

The County considers public education a fundamental component to its program. Ongoing public education will be provided for all elements of the solid waste management program that can benefit by having an informed public. Public education will have a prominent role in Becker County's waste reduction, recycling, yard waste composting, household hazardous waste, WTE and land disposal programs. Additional information on the County's waste education program can be found in Chapter 3, Section 2.

Recycling

Becker County has been active in terms of implementing waste abatement programs such as recycling. The County has developed a comprehensive county-wide recycling program. This program includes a central processing facility located in Becker County, and drop off recycling centers at 47 locations throughout the County. Becker County has a very basic processing facility with all components of the program in place and operational with plans to build a material recovery facility in the near future. Becker County has implemented programs in an effort to meet the State of Minnesota recycling goals. The County anticipates that with expanded mechanical/hand sorting recycling at The Perham Resource Recovery Facility will result in a 64 percent recycling rate by the end of the planning period.

Yard Waste Composting

The County has already banned yard waste from MSW and provides education regarding onsite management of yard waste through educational materials and community education classes. Becker County accepts yard waste at two sites (Detroit Lakes and Osage Transfer Sites) and promotes the use of these sites through its public education program. The County also assists with several other sites; Cities of Detroit Lakes, Frazee, Callaway, Cormorant, Audubon, Lake Eunice, Lake Park, Ogema, and Lake View Township three compost sites. Information on the County's yard waste programs can be found in Chapter 3, Section 4.

Household Hazardous Waste

The County has developed and implemented a household hazardous waste program in 1990 consisting of a permanent facility in Detroit Lakes which evolved into a regional program in 1995, and a mobile collection unit which became operational in 1997. The County will continue to provide household hazardous waste education programs. Additional information on the County's household hazardous waste programs can be found in Chapter 3, Section 10.

Other Programs

In 2012, the County adopted a new solid waste ordinance. The primary revisions concerned recycling, litter restrictions, and regional solid waste collection and are currently working on a designation/flow control ordinance. The ordinance has been further updated to address the hauling of recyclables and litter as defined by waste blowing free from transportation vehicles. Information on the County's tire, battery, used oil, appliances, electronics, and related programs can be found in Chapter 3.

WTE for the Future

Becker County, along with Otter Tail, Todd, and Wadena Counties formed the Prairie Lakes Municipal Solid Waste Authority, (PLMSWA) a Joint Powers Board created in April of 2010 for the purpose of purchasing and expanding the Perham Resource Recovery Facility (PRRF). The PLMSWA joint powers board made up of commissioner representatives from the four counties. In June of 2011 PLMSWA acquired ownership of the PRRF. By acquiring the PRRF, PLMSWA became eligible for an $8.075 million grant from the State of Minnesota for development and expansion of the PRRF which includes expanding the combustion capacity of the facility and the addition of a material recovery facility (MRF) designed to process fuel before combustion. PLMSWA completed the permitting process for expansion in 2012. The waste to energy (WTE) plant expansion is expected to be completed in 2014, and should ultimately raise Becker County's present tonnage of incineration capacity from 0 to 10,861 tons per year or 30.2 percent of the total waste stream going to WTE by 2023.

Management of Demolition Waste

Becker County owns and operates two demolition material collection sites; one located three mile North of Detroit Lakes and an Eastern demolition transfer site located in Osage township. The Detroit Lakes -north facility has been in operation since 1988 and the East-Osage facility has been in operation since 2010. Both facilities accept demolition debris from both residential and commercial customers however the Eastern location limits the quantity due to limited roll-off capacity.

To optimize demolition landfill capacity, Becker County began recycling specific demolition materials in the past 10 years. Concrete has been collected, crushed, and resold since 2004. The County began recycling shingles in 2012. We collect and store shingles which will be processed and reused periodically when the county can coordinate material volumes and projects for re-use.

Solid Waste Program Budget

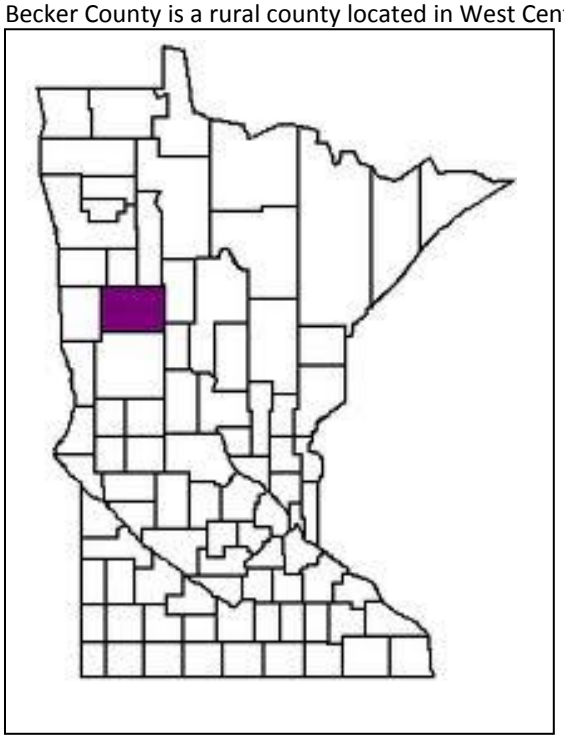
A detailed estimated of County solid waste costs and revenues for 2012 and the 10-year planning period can be found in the solid waste budget located in Appendix 2.

CHAPTER II Background Information

The following section provides a general description of the regional and natural setting of Becker County along with transportation, economic and population information.

Regional Setting and Geology

Becker County is a rural county located in West Central Minnesota about 40 miles east from the Minnesota - North Dakota border and about 240 miles northwest of the Twin Cities Metropolitan Area. The largest city in Becker County is Detroit Lakes which is located in the southwest quadrant of the county. The 2010 census documents the total county population at 32,504. The largest proportion of the population of the county is found in Detroit Lakes and in the three surrounding townships and 37 townships.



Becker County is in west-central Minnesota. It has a surface area of about 1,440 square miles. The county is 48 miles long from west to east and 30 miles wide from north to south. The county has seven incorporated cities and villages. These are Audubon, Callaway, Detroit Lakes, Frazee, Lake Park, Ogema, White Earth and Wolf Lake. Detroit Lakes is the county seat.

The county has a land area of approximately 839,700 acres. It has about 84,600 acres of water; this acreage consists of bodies of water that are 40 acres or more in size according to USDA. Approximately 295,000 acres in the county is used as cropland, 80,500 acres as pastureland, and 323,000 acres of woodland. About 141,200 acres consists primarily of wetlands and small bodies of water (less than 40 acres in size), but this acreage also includes roads and urban land.

According to the soil survey conducted by the USDA Natural Resources Conservation Services, soil scientists identified about 75 different types of soils in Becker County. The soils range widely in texture, natural drainage, and other characteristics. Soils in the western one-third of the county are dark because the original vegetation was mainly tall grass prairie. Soils in the eastern two-thirds of the county are lighter colored because the original vegetation was deciduous and coniferous forest.

Land Use

The land use in Becker County is transitional in its use from its east side to the west side. The western, south-central and southeastern parts of the county are predominantly agricultural. The north central area of the County is forested with small pockets of intermittent agriculture. Extending diagonally from the southwest corner to the northeast corner of the county are numerous lakes of various sizes and quality. The lakes portion of the county has tourism as a predominant industry. This lake area has many resorts, seasonally used cabins and year round homes. The lakes area has land usage that is predominately recreational because of the lakeshore and associated non-lakeshore properties.

Becker County is an area of abundant lakes rivers, forests and farms. The natural beauty of the County attracts permanent residents as well as many part-time residents and visitors.

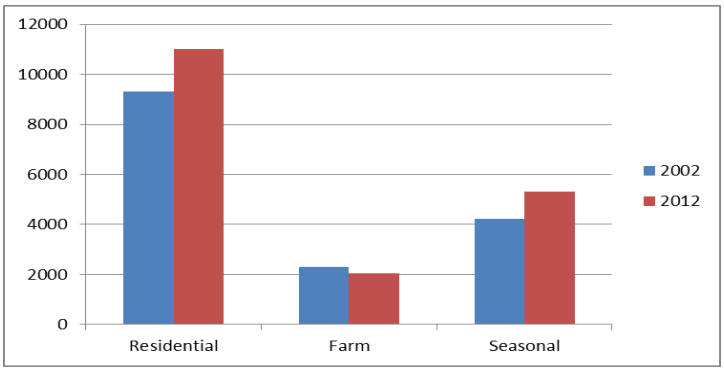
The land use is predominantly for residential, agricultural, and recreational use. Based on an analysis of the assessment records from 2002 to 2012 the following observations can be made:

Residential, farm and seasonal properties have changed in the last ten years. See table 1 and figure 1.

Table 1 Land Use - Improved Properties

Year	2002	2012
Residential	9303	11023
Farm	2296	2051
Seasonal	4221	5304

Figure: 1 Land Use



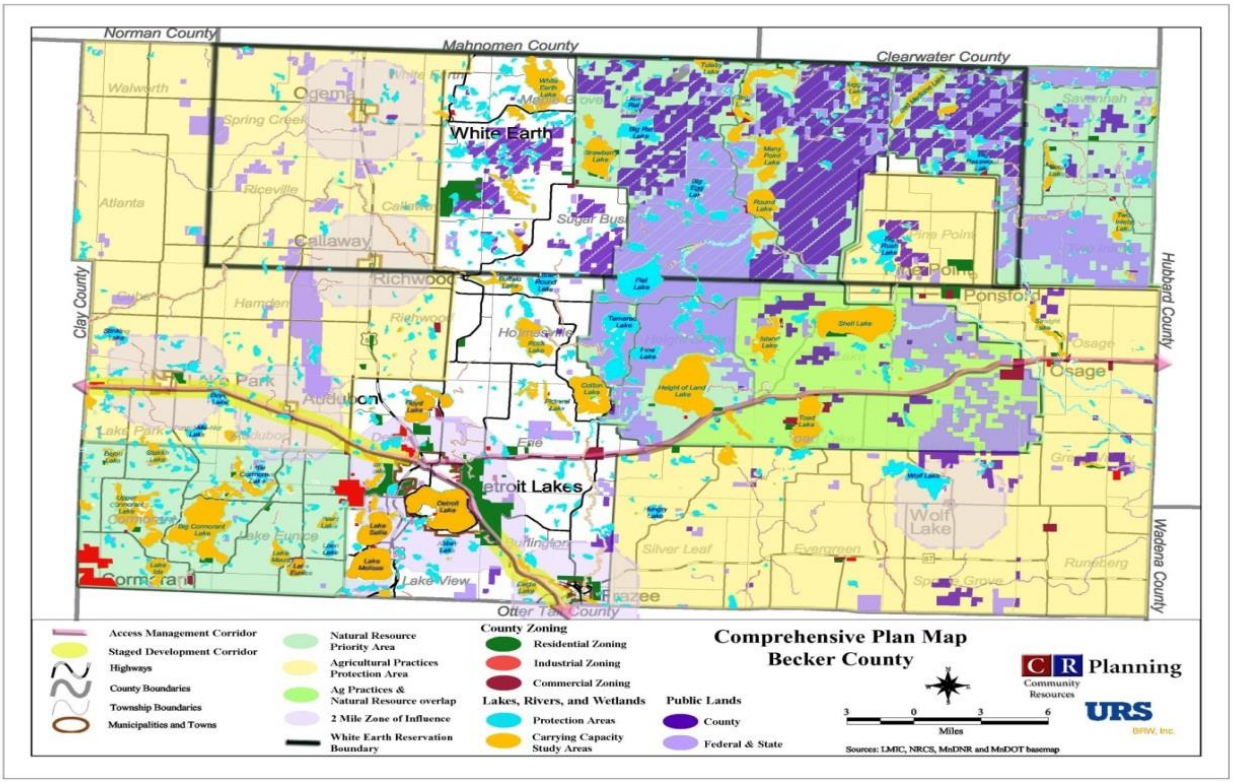
- This suggests there is and will continue to be a slow change in the use of the farm homes to either residential or seasonal residential used dwellings. The growth in the residential housing inventory will continue to be around the lakes, in and around Detroit Lakes, the southwestern region, and southeastern area of the County in the Menahga school district.
- Agricultural properties – the number of improved agricultural properties has steadily been declining since 2002, from 2,296 residential homesteads in 2002 to 1,840 agricultural homesteads in 2012, or a decrease of 10.6%. This trend is expected to continue as farms get larger through consolidation, primarily throughout the agricultural areas identified on the Becker County Land Use Zoning Map in figure 1.
- Bare land – land throughout the County is used for a variety of purposes, agricultural, timber, recreational, and for residential uses.
- The County has numerous recreational opportunities for people to visit and enjoy in addition to the numerous lakes scattered throughout the county. There a number of wildlife refuges in the County, they are as follows:

    - The National Hamden Slough Wild Life Sanctuary,
    - Tamarac National Wildlife Refuge,
    - the Smokey Hills State Forest,
    - Blueberry State Forest,
    - Two Inlets State Forest,
    - Becker County tax forfeit lands -75,000 acres of County managed tax forfeit lands used primarily for recreational purposes, located primarily in the north central region of the County.

Becker County does have county wide zoning which is used to control the development of the County.

As depicted on the map (figure 2), a large portion of the County is controlled by the state and federal governments to protect the natural environment in those areas. The northwest and eastern portions of the County have been identified as agricultural areas. The economy of Becker County continues to be based on government services, industry, timber harvesting, timber industry, agriculture, and tourism. Because of the beautiful natural amenities in Becker County, the future of land use will be defined by competition over differing uses of land and resources.

BECKER COUNTY LAND USE ZONING MAP – Figure 2



Becker County adopted a Comprehensive Land Use Plan in August of 2002. The plan is the policy framework Becker County will use to guide its land use activities through 2023. The plan sets broad goals to direct the future growth and development of the County in the following areas: natural resources, housing and settlement patterns, and agriculture, commercial and industrial development, recreation, transportation, and government cooperation. The goals set forth the vision of stewardship for the natural, cultural, and human resources of Becker County as described by the citizens of the County during the development of the Plan.

Transportation System

Becker County is has several major highways that intersect within its borders. Most of the major highways are paved. State Highways 34 & 87 run east and west through the eastern two thirds of the county and state highway 34 connects Detroit Lakes with Park Rapids in Hubbard County. State Highway 87 runs from Frazee to Menahga in Wadena County. U.S. Highway 10 is a four-lane highway that enters the county near Frazee and passes through Detroit Lakes, Audubon, and Lake Park on its way across Becker County to the Fargo Moorhead regional center. U.S. Highway 59 runs north and south through the County and serves the towns of Detroit Lakes, Callaway and Ogema. The County maintains 677 miles of well-established county roads.

Two railroads serve Becker County. The Canadian Pacific/Soo line runs north and south through Detroit Lakes, Callaway, and Ogema and the Burlington Northern/Sante Fe runs east and west through Frazee, Detroit Lakes, Audubon, and Lake Park.

Becker County is served by a city-owned public-use airport located two miles (3 km) west of the City business district. Detroit Lakes Airport covers an area of 288 acres (1.17 km^2) which contains two runways designated 13/31 with a 4,500 x 75 feet asphalt surface and 17/35 with a 1,880 x 250 feet turf surface.

Economic Base

The County has a diverse economic base is which consists of agricultural, forest products, community support business's, light and heavy manufacturing, and tourism. No rapid changes or shifts in employment are anticipated. The annual median income in 2010 was $46,056.

- Agricultural: The agricultural base to the county should remain stable. The number of farm families is changing as the average size of farm units continues to get larger due to consolidation and vertical integration of the food chain. The number of active farm units continues to drop in all types of agriculture in the County while the average size of each farm unit continues to get larger either though expansion of the acres farmed through infrastructure development as in the case of dairy, swine or poultry operations.

- Community support Industries/Business's: Detroit Lakes continues to grow as a sub-regional center, as evidenced in the investments made by all of the health sectors. Essentia Health and Sanford Health recently underwent a major renovations and expansions in 2011. Both health service providers and Essentia St. Mary Hospital had major construction in 2011 and 2012. Currently the Ecumen/Emmanuel Nursing Home is going through a major expansion beginning in 2013.

- The number of school children enrolled in the public schools dropped by 2%/year from 2002 to 2007, then reversed and has been growing 2%/year from 2007 to 2011. This increase in enrollment has caused the Lake Park/Audubon, Detroit Lakes, and the Menahga school districts to either expand or are planning to expand in the near future due to increased enrollment.

Table 2
Public School Enrollment in Becker County 2002-2011

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Becker Co.	4,746	4,644	4,462	4,384	4,438	4,241	4,324	4,298	4,315	4,414	4,495

Source: MN Department of Education

- Manufacturing: Manufacturing in Becker County has grown dramatically over the past 10 years, the total amount of manufacturing floor space grew from 1,100,006 SF in 2002 to 1,603,677 SF in 2012, an increase of 4.56%/year of total manufacturing floor space in the County. This trend is expected to slow as manufacturing processing get more efficient and less floor space for processing is needed in the future.

- Tourism: the local tourism industry was minimally impacted by the downturn in the economy in 2009-2011 and has steadily increased since 2011. Tourism is expected to have an increased impact in the future as County infrastructure is developed, example: Detroit Mountain Recreation area.

- Retail: Becker County has had a significant growth in the amount of retail floor space in the past 10 years when major retailers such as Wal-Mart, Menards, and L & M Fleet came to Detroit Lakes as well as a number of smaller retail outlets. The increase in retail business is reflected in the gross sales from Becker County as reported by the Minnesota Department of Revenue. In 2003 gross sales were $666,394,084 and in 2010 the reported gross sales from the County were $783,568,058, an increase of 17.6% or an annual increase of 2.52%. This trend is expected to continue into the future.

The top five industries in Becker County are: Educational/Health Care/ Social Assistance: 3838; Manufacturing (2094); Retail (2003), Construction (1381), Entertainment (1143). Unemployment has affected many parts of the Country; however it had a minimal affect in Becker County.

The local economy grew from 2002 to a high point in 2008 and slowed down through 2010 and has since stabilized and is starting to recover in 2012 as shown by the increase in new home starts (see section 1, page 4,).
Current discussion with community leaders indicate that the local economy is strong as evidenced by an increase in demand for workers by the manufacturing and health sectors and a lack of available housing for workers coming into the County.

Table 3
Labor Force, Employment & Unemployment

	LABOR FORCE		EMPLOYMENT		UNEMPLOYMENT	
	APRIL	MAY	APRIL	MAY	APRIL	MAY
2011	16779	18209	17401	17075	7.7	5.6
2012	17735	18313	16765	17401	6.3	5.1

Population Base

The majority of the County is moderately populated, with concentrations around lakes, small cities, and in Detroit Lakes. There is a large influx of population during the warm months of the year, both seasonal residents and tourists. Becker County's population is estimated to triple or more in the summer months due to the recreational opportunities in the County. Becker County is approximately 1,440 square miles in area, 30 miles north/south by 48 miles east to west. The City of Detroit Lakes, which is the county seat, has a year round population of 8,569 residents. Seven smaller cities in rural Becker County have a combined population of 11,696 or approximately 36 % of the county population.

The White Earth Indian Reservation is located in the north central portion of the County, it occupies approximately 30% of the landmass of the County, an area that is 36 miles E/W x 12 miles N/S along the northern border of the County.

Becker County hosts a large number of visitors throughout the year as well as seasonal residents, which increases the population during peak tourism months of June-August. Based on data obtained from the Becker County Assessor Office, 13,552 or 62% of the properties in the County with improvements on them are owner occupied, 5,833 or 26% of the properties are used for seasonal recreational purposes. 2,669 or 12% of the improved properties are used for commercial/industrial uses or are tax exempt.

Tables 4 shows the change in population from 2000 to 2010 and Table 5 shows the population projections.

Table 4
Becker County Population 2000-2010

Year	2000	2010	Total Change	Annual Change
Population	30000	32504	8.3%	.83%

Source: MN State Demographic Center, US 2010 Census

Table 5
Becker County Population & Household Projections 2010-2030

Year	Population	Households
2010 (Census)	32504	13350
2015	33571	14120
2020	34728	14880
2025	35777	15530
2030	36714	16090

Source: MN Dept. of Administration/Office of Geographic & Demographic Analysis

The projected increase in population and waste generation can be attributed to the following factors present in Becker County.

1. Becker County is located within 40 miles east of Moorhead, MN and Fargo, ND (regional trade center). Because of the close proximity and the short commute to the FM area, people are building new houses or remodeling existing housing inventory to be used as either a primary residence on or for recreational use on the lakes throughout Becker County. The 2008 downturn of the economy had a slight effect on waste in the County and seems to have since recovered in most of the different economic sectors within the County.
2. Commercial and industrial support industries continue to increase creating additional opportunities.
3. Becker County is viewed as a preferred retirement area.
4. The tourism industry results in a large influx of seasonal residents and tourists to Becker County, people are choosing to live here permanently. The County offers many recreational opportunities that can be enjoyed here, whether it is by using the lakes, rural woodlands, or social events. This increased population causes a large increase in solid waste generation over the base solid waste generation of the residents of the county. The increased solid waste generation occurs during the late spring, summer and fall. There is a smaller increase above the base generation rate of the residents, in the winter season because of snowmobiling, skiing and ice fishing. In addition to the influx of seasonal residents, the area supports some of the major festivals of Minnesota, which draw very large crowds and which dramatically impact solid waste generation, collection, recycling and disposal for a few days at a time. The following event(s) have large impacts on the waste stream. These events are:
    - WE Fest - a country western festival in August that usually draws about 150,000 people for a four day weekend.
    - Northwest Water Carnival – a series of weeklong events that end with the largest parade in Northwestern Minnesota, - several thousand people attend.
    - Dick Beardsley ½ marathon – held in September and attracts approximately 10,000 persons to race around Big and Little Detroit Lakes.

When these events are occurring, they have major impacts on the collection, disposal and recycling facilities of the county during a short period, usually a week. These events are in addition to the usual increased activities of the holidays of Memorial Day, Fourth of July and Labor Day. The second factor is the abundant lakes and forest land that makes the County a desirable place to live and retire.

Waste Generation

Table 6 and Figure 3 illustrates historically the waste generation, recycling and on-site disposal tonnages managed from 2007 through 2012 in Becker County.

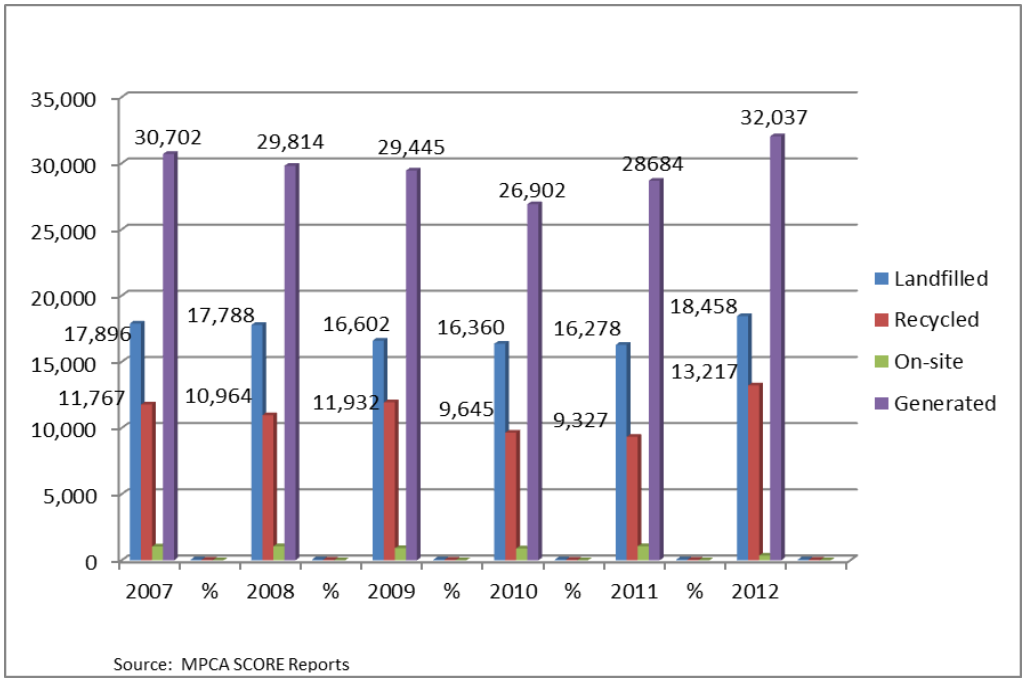
Table 6

Becker County Waste Generation, Recycling & Disposal Analysis 2007-2012

(tons)

Method of Waste Disposal	2007	%	2008	%	2009	%	2010	%	2011	%	2012	%
Landfilled	17,896	58	17,788	60	16,602	56	16,360	61	16,278	57	18,458	58
Recycled	11,767	38	10,964	37	11,932	41	9,645	36	9,327	33	13,217	41
On-site	1,039	3	1,062	4	911	3	897	3	1,068	4	362	1
Generated	30,702		29,814		29,445		26,902		28684		32,037	

Figure 3



When looking at Figure 3, it is seen that the amount landfilled has stayed fairly steady over the last several years, with a slight dip in volume in 2010 and 2011. This is attributed to the economic downturn of the national economy.

According to Table 6, in 2012 the volume landfilled went up only 1% whereas the volume of recycling increased a total of 8 %. The increase in volume landfilled was due to White Earth Reservation volume being included in 2012, but not in years previous. The increase in recycling volumes can be attributed to Becker County's focus on updating the entire recycling program and on more comprehensive business SCORE surveys/reporting and we see this trend continuing in 2013 and beyond.

It is estimated that 87.5% of the waste is delivered by commercial and self-haulers to the County Transfer Station. Based on financial revenues, licensed haulers estimate the average waste generation breakdown as follows: 55% commercial; 40% residential; and 5% industrial. The solid waste stream in Becker County consists almost entirely of household and commercial waste. A limited amount of industrial waste is also part of the local waste stream. Industrial waste is managed on a case-by-case basis.

In 2012 Becker County generated 32, 037 tons of municipal solid waste (MSW). Based on a population of 33,731, the per capita solid waste generation rate was 0.95 tons, or 1,900 pounds of waste generated per person in a year.

Large Waste Generators

In 2012, of the 32,037 tons of solid waste generated: 18,458 tons were landfilled; 13,217 tons were recycled and an estimated 362 tons of material that were disposed of illegally. Many industries are active in Becker County such as: the metal stamping industry, health care, and education. The largest waste generators by business sectors are:

Table 7 indicates the major solid waste generators in Becker County 2012.

Table 7
Major Solid Waste Generators

Industry	County	Employees
Health Care/Education	Becker County	3838
Manufacturing	Becker County	2544
Retail/Entertainment	Becker County	3146
Construction	Becker County	1381

Becker County has strong public and private sector partnerships and support services to encourage economic development and create stable jobs.

Demolition Debris

There are two demolition landfills in Becker County. They are:

1. The Becker County Demolition Landfill, located at the Becker County Main Transfer Station/Demolition Landfill site. Demolition debris generation and disposal varies with construction and demolition activity. See table 15 for demolition materials landfilled at the Becker County Demolition Landfill.
2. One privately owned (Hough Inc.) demolition landfill, with approximately 10, 0000 cubic yards of demolition material buried per year.

The County also allows permit-by rule sites for disposal of smaller quantities of demolition debris in conjunction with the MPCA.

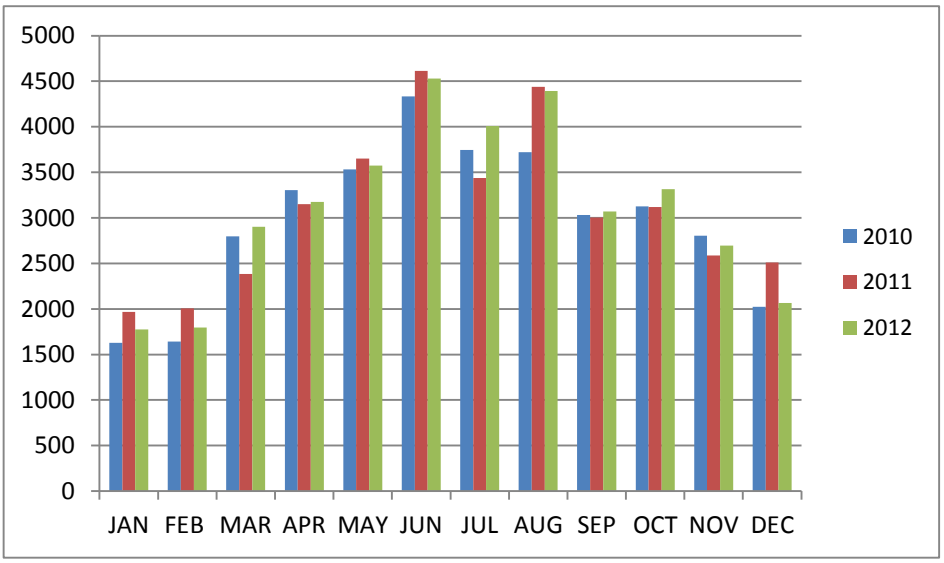
Table 8 Demolition volumes for Becker County Demolition Landfill Site

TYPE	2006	2007	2008	2009	2010	2011	2012	Total Yds.	Average
TOTAL DEMO RECEIVED (CY)	30003.25	28690	20438.7	19595.13	22842.15	21368.93	21518.5	142938.2	23823.03
DEMO LANDFILLED (CY)	24500	22135	19632.5	17783.88	21456.95	20041.92	16932	125550.3	20925.04
DEMO RECYCLED (CY)	5503.25	6555.5	806.25	1811.25	1385.2	1327	4586.5	21974.95	3139.279

Seasonal Variation

The many lakes and recreational facilities located in the County have resulted in a large influx of summer visitors to the area. In addition to the visitors, there are numerous summer and seasonal residents. This influx occurs primarily during the summer months and can challenge the solid waste service infrastructure as is evidenced with Figure 4, monthly MSW volume.

Figure 4 - Monthly MSW volume 2010-2012



Waste Characteristics

A waste composition study has not been performed in Becker County; however, a waste composition study has been performed in Otter Tail County, a copy is included in Appendix 3. Composition of mixed municipal solid waste is highly affected by the relative amount of residential, commercial and industrial waste. Commercial and industrial waste typically has a high content of paper and plastics, with corresponding lower moisture content and higher heating values. Furthermore, yard waste generation is seasonal and typically contributes to higher moisture content and high quantities of solid waste in summer and fall. Though yard waste is banned from processing and disposal facilities, some does inadvertently enter the waste stream. Overall, municipal solid waste generally is 75 to 85 percent combustible and 15 to 25 percent non-combustible. An average moisture content of 25% and an average heating value of 4,500 BTU/LB have been used in previous studies.

Financial Incentives for Waste Abatement

In 1994 Becker County began the implementation of a volume based solid waste service fee for its commercial/industrial customers. From 1996-2005 all residents and businesses in Becker County paid a solid waste service fee to the County. In 2005 the residential fee was removed from the tax statements, although businesses continued to pay the volume based solid waste service fee. The fee is collected as a special assessment on the real estate property taxes and is intended as a revenue stream to offset Becker County's costs associated with waste education, waste reduction, recycling, household hazardous waste and solid waste disposal services provided by Becker County. The fee was originally based on an average of the wastes generated by residents and businesses. After many years of no increase in volume based fees to businesses, in 2013 the Becker County commercial solid waste service fees were increased and will continue to be reviewed on an annual basis.

Becker County anticipates in 2015, the residential service fee may be re-instituted to supplement cash shortfalls incurred due to the MSW disposal cost at the PRRF.

Collection System

Private waste haulers collect the majority of solid waste produced by County residents and businesses. The haulers operate under an open collection system. An estimated 65 percent of all households contracted with a private hauler for waste collection services. Those residents and businesses that do not contract for solid waste services haul their own solid waste to the Becker County Transfer Stations, landfills outside of Becker County, or use another means of disposal such as on-site disposal.

All waste haulers that provide service to Becker County residents and businesses are required by our Becker County Solid Waste Ordinance, section 11, to obtain an annual Collector's License from the County. The City of Detroit Lakes ordinance requires all license haulers who collect MSW from residents to provide for the collection of recyclable materials as part of their garbage service. The County collected an annual waste hauler license fee from 12 private waste haulers in 2012. Typically, the annual licensing of waste haulers by the County Board occurs in December of the year prior to the year of licensing.

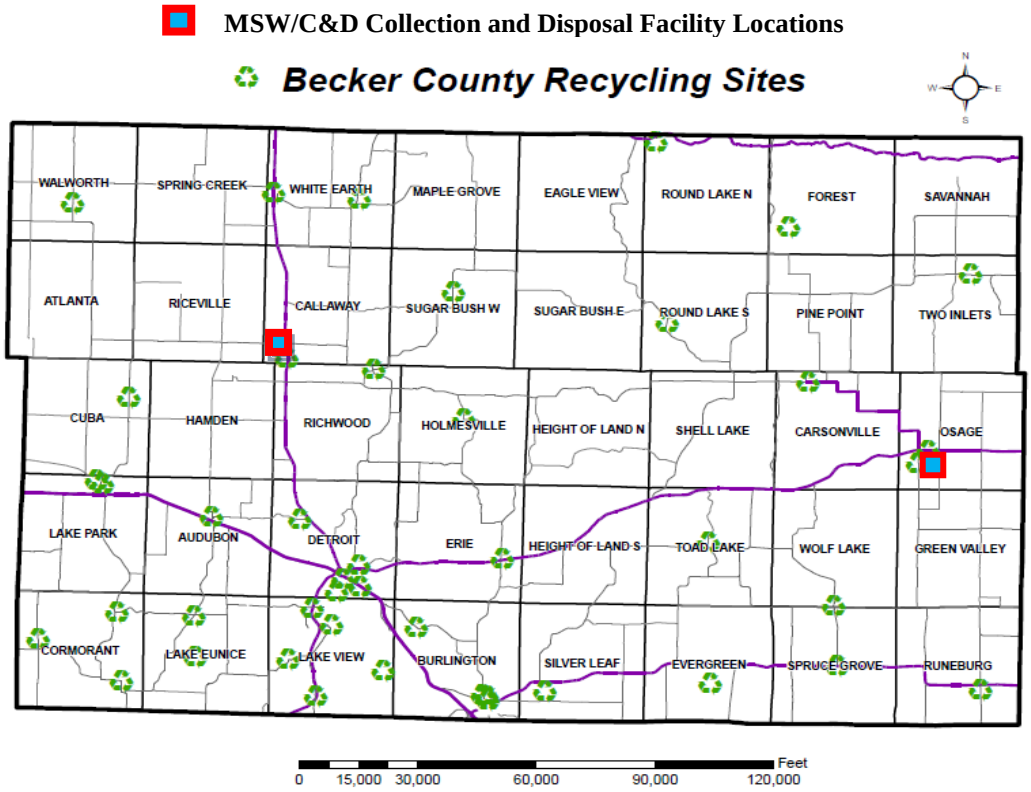
The County population has access to waste disposal through licensed haulers or delivery to county owned and operated waste transfer station facilities. The County Environmental Services Department estimates that 94 percent of all waste is captured in the County and ultimately disposed at an approved site.

Private haulers collect residential and commercial solid waste. Some of the haulers collect recyclable materials (see table 9). Haulers charge between $15.00 and $50.00 per household per month for solid waste collection. The rate structure is based on volume based pricing. The volume collected and the frequency of the collection determine the collection costs. Hauler rates vary depending upon the location in the County. Haulers are not required to submit their rates as a condition of licensor; however, a competitive atmosphere exists. Solid waste haulers are required to base their rates on weight or volume of waste collected regardless whether the waste is collected from residences, businesses or industries.

Table 9

Table 9 illustrates the solid waste haulers licensed by the County in 2012

NAME	AREA SERVED	MSW TYPE	SERVICES OFFERED
Ballard Sanitation	Pelican Rapids, Vergas	Residential, Commercial	Demo/MSW
Jon & Son's Disposal Svs	Becker County	Residential, Commercial	Full Service
Minnkota Recycling	Becker County	Residential, Commercial	Recycling
Waste Management	Becker County	Residential, Commercial	Full service
AAA Roll Off Svs	Eastern Becker County	Residential, Commercial	Demolition
City Sanitary Service	Eastern Becker County	Residential, Commercial	Demo/MSW
Fuchs Sanitation Svs Inc.	Western Becker County	Residential, Commercial	Full service
Metro Disposal Inc.	**Becker County**	**Residential, Commercial**	**Full service**
Hough, Inc.	**Becker County**	**Residential, Commercial**	**Demo/MSW**
White Earth Sanitation	**Becker County**	**Residential, Commercial**	**Demo/MSW**
Detroit Lakes Disposal Svs	**Becker County**	**Residential, Commercial**	**Full service**
Northern Pines Sanitary Svs	**Becker County**	**Residential, Commercial**	**Demo/MSW**
Becker County	**Becker County**	**Residential (47 public sites), Commercial**	**Recycling**



Transfer Stations

Becker County has a solid waste transfer system that consists of the main transfer facility near Detroit Lakes and a permit by rule transfer site by Osage MN, which was opened in 2010. These facilities are owned and operated by Becker County.

The main transfer station is located north of Detroit Lakes at 24413 Co Rd #144, Detroit Lakes where waste is consolidated and transferred by semi- truck to the Fargo, ND Landfill owned by the City of Fargo. Becker County also operates a permit-by-rule satellite transfer site near Osage which was opened in 2010, located at 23330 Co. Rd 47. The County offers disposal of demolition, special wastes, and administers the recycling program at each site. Financial incentives for households for waste reduction and recycling include free dumping of recyclable items, household hazardous waste, waste oil, antifreeze, batteries, oil filters, appliances and scrap metal, tires, fluorescent bulbs/ballast (limits apply), and a per cubic yard charge for MSW. The waste collected at the Osage sites is hauled to the Main Transfer Station and consolidated with other waste for final disposal.

The County Solid Waste Department bills approved commercial demolition/MSW accounts monthly. On average, 23,823 cubic yards of demolition are generated and disposed of in the Becker County Demolition Landfill, see table 14. The Osage Permit by Rule transfer site is a collection point for all types of waste. After the waste is consolidated there it is hauled back to the Main transfer facility to be shipped with other wastes for final disposal.

Table 10 depicts the amount of MSW transported from Becker County to the Fargo ND landfill since 2000 and demolition buried in the Becker County demolition landfill from 2006 to 2012.

Figure 4 shows a historical look at solid waste in Becker County and the impact of solid waste diversion from 2000-2003 from one waste hauler.

Table 10

TYPE	2006	2007	2008	2009	2010	2011	2012	Total Yds.	Average
TOTAL DEMO RECEIVED (CY)	30003.25	28690	20438.7	19595.13	22842.15	21368.93	21518.5	142938.2	23823.03
DEMO LANDFILLED (CY)	24500	22135	19632.5	17783.88	21456.95	20041.92	16932	125550.3	20925.04
DEMO RECYCLED (CY)	5503.25	6555.5	806.25	1811.25	1385.2	1327	4586.5	21974.95	3139.279
SHINGLES (CY)	N/A	N/A	NA	NA	NA	NA	2536.5		
MSW (tons)	18729	17896	177788	16602	16360	16278	18458.5*	*2081.9 White Earth Sanitation	

Source: MPCA Annual Report

Figure 5- Waste diversion graph

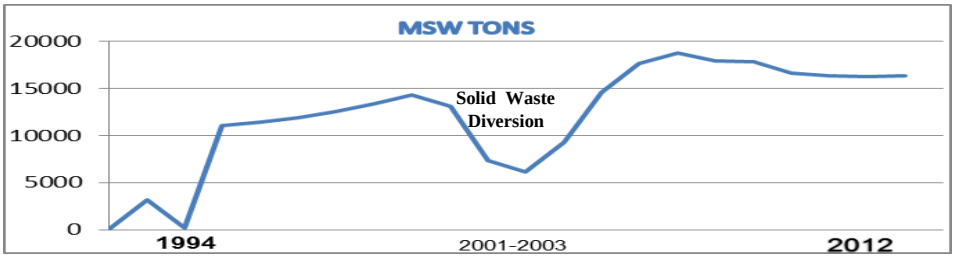


Table 11 represents the current tipping fee schedule for Becker County facilities.

Table 11 Becker County Facility Disposal Fees 2013

TYPE OF MATERIAL	TIP FEE
MSW – Per cubic yard- loose	$ 9.40
MSW – Commercial	$ 70 (in county) $90 (out of county)
Appliances & Scrap Metal	No charge
Electronics	Monitors & Televisions $5.00 each
Tires	$ Free (4 per visit)
Furniture (i.e.: couch/no sleeper)	MSW equivalent ($9.40 average per item)
Mattresses & Box Springs	$4.98 each
Demolition	$8.40/cu.yd. – self haul
Fluorescent Bulbs	Free- (10 per visit)

Effective collection service is a vital component to a successful waste management system. The collection service in Becker County is wide-ranging. The County recognizes the need for efficient, cost effective waste collection for seasonal and year-round residents into the overall waste management system and there is the availability of waste disposal in all regions of the County and 47 public recycling sites located throughout the county.

There is good coverage for waste collection services by haulers in Becker County. The County encourages rural and seasonal residents to use the services the private haulers provide or to self-haul to either of the public waste transfer sites. The County has encouraged the use of rural hauling services in its waste education program. Along with public education, the County intends to focus on enforcement as a means of minimizing the problem of MSW bags being placed in recycling containers.

Transfer Station Challenges

Becker County recognizes that transfer stations are a vital and necessary component of the solid waste management system. They serve as a drop off sites for special wastes, MSW, and yard waste. In 2010 Becker County opened the Osage Transfer Site in response to public need in the Eastern region of the County and will continue to evaluate needs for waste transfer sites in other regions of the County.

Transportation costs represent a large portion of the overall solid waste management system costs. Transfer stations can be used to maximize transportation efficiencies and economics. It has been and will continue to be the policy of Becker County to evaluate the efficiencies of the transfer facilities and the economics of their operation. The Becker County Environmental Services Director will be the lead County individual regarding evaluation of the waste transfer and transportation network.

Past Solid Waste Planning Activities

Past planning activities have included an extensive evaluation of the County recycling system and MSW waste disposal options. Becker County has explored regional options to dispose of MSW and determined that is should go to the Perham Resource Recovery Facility (PRRF) in the future. The Becker County MSW Landfill has been closed and capped since 1990. All planning documents prepared by or for Becker County are located at Becker County Environmental Services Office.

History of System Development

1970's City and Township dumps used for disposal of all types of waste.
1972 MPCA issues Permit SW-99 to Becker County to construct and operate a sanitary landfill.
1975 Closure of rural dumps.
1980 The Waste Management Act passed into law.
1985 Tires banned from landfills, SCORE Committee and Grant process established.
1987 County rural recycling program established utilizing 47 sites/sheds.
1988 County Transfer Station constructed.
1990 Becker County Landfill closed
- MSW sent to the Perham Resource Recovery Facility
- County HHW Program started
- Major appliances banned from the waste stream.

1991 Final closure of SW-99 Sanitary Landfill due to ground water contamination begins.
- Becker County begins transferring waste to the Gwinner, ND Landfill

1992 Closure of SW-99 complete
- MPCA begins groundwater monitoring and contamination remediation.
- Yard waste is banned from the MSW stream.

1993 Becker County starts landfilling waste at the Fargo Landfill. New Demolition landfill was approved.
1994 Becker County MSW Landfill placed on Minnesota Superfund List.
1995 Fluorescent bulbs banned from landfilling and managed as a separate waste.
1996 County MSW Landfill SW-99 taken into the MPCA Closed Landfill Program
1997 County five year Solid waste plan approved.
1998 Constructed a new Regional HHW facility at the Becker County transfer station site.

Lead batteries banned from landfilling.

1999 Waste oil and filters banned from the waste stream.

2001 The County solid waste ordinance is updated.

2007 Becker County started source separated electronic waste collection and recycling.

2009 Becker County signs a cooperative agreement with MDA for waste pesticide collection.

2010 Osage solid waste transfer site established.

2011 Becker County joins Otter Tail, Todd, and Wadena Counties in the Prairie Lakes Municipal Solid Waste Authority (PLMSWA) with the intent to purchase and expand the Perham Resource Recovery Facility.

- County recycling program changed from using sheds/ barrel containers to 250 10 CY recycling dumpsters utilizing a front loading compactor truck.
- County develops a small recycling facility and starts processing and selling recyclable commodities.
- County recycling collection program extended to commercial businesses.
- Becker County starts a pharmaceutical collection program.

2012 - A new County Solid Waste Ordinance approved.

- Asphalt shingle recycling program established.
- Expanded the county recycling program to businesses.
- Began site preparation of a new Transfer Station

In the early 1970's There were numerous small township and city dumps throughout the County which were closed through the combined efforts of the MPCA, Becker County, and local township's and cities. A MSW landfill was permitted north of Detroit Lakes in 1972, at the site of the current Transfer Station and this landfill was closed in 1990 after discovering that contaminates were entering into the water table. The landfill was entered into the MPCA Closed Landfill program in 1996.

When the MSW landfill was closed in 1988, at which time the County constructed a transfer station at the landfill site and in 1990 sent waste to the Perham Resource Recovery Facility in Perham Minnesota. In 1991 the County began sending waste to the Gwinner, ND landfill. In 1993 the County began sending MSW to the Fargo Landfill and continues to send waste there.

In 2000 Becker County constructed a regional HHW facility on the Transfer Station site, in 2009 the County began collection of agriculture pesticides through an agreement with the USDA, in 2011 the County began collection pharmaceuticals, and in 2013 the County received it's designation as a very small quantity generator (VSQG). In

There are two operating Demolition landfill in the county, the Becker County Demolition Landfill which is located on the same site as the main transfer station, and the Lakes Demolition Landfill, which is owned and operated by Hough Inc. The County does manage one closed demolition landfill that is located at the Transfer Station site. In 2010 the County established the Osage solid waste transfer site, located at 23330 County Road 47, Osage.

In 1987 the County established it rural recycling program by placing recycling sheds with barrels inside to collect source separated recyclables at 37 different locations around the County. In 2011 the County changed the recycling program by converting the shed/barrel system collecting source separated recyclables in 10 cubic yard dumpster containers and a compactor truck to collect the recyclables.

Additionally the County began a new commercial recycling collection program by offering to lease and service recycling containers to businesses. Currently there are 25 businesses using this service.

Current Local and Regional Planning

Becker County recognizes the need to evaluate and consider solid waste management alternatives, including regional solutions for landfill abatement. Becker County has determined that the proposed solid waste

management system described in this plan is the most feasible and prudent system available to the County at this time. The County intends to continue its solid waste management planning and change as needed.

Plan Overview:
One of the primary changes to the Becker County solid waste management system is the County's involvement in the Prairie Lakes Municipal Solid Waste Authority (PLMSWA) and anticipated delivery of solid waste to the Perham Resource Recovery Facility (Perham Facility).

In 2010, Becker County joined the counties of Otter Tail, Todd and Wadena in the creation of the PLMSWA joint powers board with a goal of regional cooperation on solid waste management activities as well as jointly owning and operating the Perham Facility. The PLMSWA acquired ownership of the Facility from the City of Perham through bonding and paying of the existing bonded debt of the City. After evaluating the waste generated in the four counties, as well as the feasibility of reducing, reusing or recycling the waste through individual county programs, the PLMSWA determined that the PRRF should be expanded to further reduce land disposal of, and increase recovery of resources from, solid waste.

Participation in the PLMSWA and delivery of a substantial portion of the County's waste to the Perham Facility is a key component to Becker County's approach to higher and better use of waste materials. In addition to County programs designed to reduce or recycle waste, the facility expansion will also include a Materials Recovery Facility (MRF) aimed and further increasing overall recycling in the counties delivering to the Facility.

While Becker County's most recent Solid Waste Management Plan update, approved in 2002, focused on strategies to minimize reliance on land disposal of waste, the County had still been delivering substantial waste to landfills located in North Dakota. The current Plan instead focuses delivery of waste to the Perham Facility in an effort to greatly minimize land disposal and increase resource recovery. It is estimated that Becker County's participation in the PLMSWA and the County's direction of waste to the Perham Facility will decrease land disposal of solid waste generated within the County by approximately 50 percent.

Existing and Proposed Solid Waste Management Systems:
Becker County's solid waste plans have previously emphasized solid waste reduction and recycling but also relied heavily on land disposal. As of 2001 and just before the last Plan was updated in 2002, approximately 70% of the waste generated in Becker County was land disposed. Of the solid waste collected in Becker County, most was managed at landfills in North Dakota, primarily the Fargo Landfill but also the landfill in Gwinner, North Dakota.

Despite being higher on the state waste hierarchy and until this Plan, the County had not been able to identify a viable resource recovery option for a significant portion of the County waste.
Since the last Plan Update, many circumstances have changed making the Perham Facility an attractive option for Becker County waste. The proximity of the Facility and consistency with the state hierarchy continue as benefits, but the Perham Facility is also undergoing an expansion and upgrade making it more available to accept Becker County waste. The addition of another boiler will expand capacity and reduce the likelihood of facility shut downs. Further and as discussed below, Becker County will participate in its ownership and operation as a part of the PLMSWA creating a direct and proactive relationship between the County and the Facility.

In 2011 the State of Minnesota authorized funds for the expansion of the Facility, a development that is currently underway. The expanded facility will consist of five major components: 1) waste receiving, processing and storage; 2) materials resource recovery ("MRF"); 3) combustion; 4) energy generation (i.e., steam and electricity); and 5) air pollution control equipment. The expansion will increase the MSW processing capacity of the facility from 116 tons per day (tpd) to as much as 200 tpd, or an annual processing capacity of approximately 80,000 tpd (73,000 combustible tons). The expansion includes the addition of a second waste heat boiler and associated APC system train which would allow each combustion unit to run at 100 tpd. The PLMSWA anticipates initially operating the facility at about 55,000 tpy of combustible waste. The addition of the MRF will not only remove recyclable materials enhancing overall recycling rates, but also remove undesirable waste and further increase the

operational efficiency of the Facility. The expansion is anticipated to be complete by mid-2014 and Becker County is planning to deliver the majority of its waste to the Facility for at least the next decade.

The County is exploring use of waste designation as provided in Minn. Stat. §§115A.80 - 115A.87 as a method to ensure sufficient delivery of waste to the Facility over the long term. The use of waste designation is supported by the 2007 decision of the U.S. Supreme Court in *United Haulers Assoc. Inc. v. Oneida-Herkimer Solid Waste Management Authority*, 127 S.Ct. 1796 (2007) (finding that waste designation, or "flow-control", ordinances to publicly-owned and operated facilities are not per se in violation of the dormant Commerce Clause of the U. S. Constitution.). The Court further ruled that such ordinances provide much greater public benefits than any negative impacts on interstate commerce under the dormant Commerce Clause balancing test established in *Pike v. Bruce Church, Inc*., 90 S. Ct. 844 (1970). Because the Authority's Facility and the County's transfer station are publicly-owned and operated, designation to these facilities is consistent with the holding in *Oneida-Herkimer*.

CHAPTER III Existing and Proposed Solid Waste Management Systems

County Solid Waste Goals & Policies

Becker County Environmental Services Department is accomplishing its mission and goals of: "securing a stable, cost effective, long term solution for the disposal of all types of solid waste for all residents while educating an informing the public on critical environmental issues". To achieve the mission and goals the County will:

Find a stable, long term solution for solid waste generated from within Becker County. By entering the joint power agreement of Prairie Lakes Municipal Solid Waste Authority (PLMSWA) and hauling waste to the Perham Resource Recovery Facility (PRRF), that will ensure the County will have a long term solution for the majority of the waste produced that is not recyclable, banned by from the waste stream or diverted in a more preferred manner.

Increase the volume of waste recycled. With the changes the County has instituted over the past few years with its recycling program, volume capacity at each site has increased, as well as more co-mingling of products at sites which has reduced collection costs. As a result of these changes, the amount of products handled through the program increased substantially.

Meet challenges & opportunities within our programs. County has established the following goals for the future:

- Explore ways to allow for more comingling of recyclable materials and streamlining the collection process.
- Invest in a new material recovery facility which will allow the county to process greater variety and volumes of material, many of which are not currently recycled.
- Work with local units of government to expand public recycling infrastructure.
- Work with local business to expand recycling in the multi-family housing, commercial, and industrial sectors.
- Work with neighboring counties to expand recycling opportunities regionally.
- Explore ways to expand the existing recycling and/or reuse of demolition materials.

Expand the County solid waste educational program by developing a social media outreach program and the continued expansion of the County website. The County will continue to work regionally on public educational and outreach to promote solid waste.

Overview of Existing Solid Waste Collection and Disposal System

The Becker County Main Transfer Station is the central collection point for waste generated throughout the County. In 2012, 16, 376.63 tons of municipal solid waste (MSW) was delivered to the Fargo ND Landfill. An additional 2,081.86 tons was collected by White Earth Sanitation and sent to the Waste Management landfill in Gwinner, North Dakota through the White Earth Tribes Transfer Station located in Mahnomen County. It is estimated that approximately 1,000 tons are delivered to transfer stations in neighboring counties by licensed haulers that operate across county lines.

Our program collects: MSW, special wastes, HHW, furniture, mattresses, anti-freeze, waste oil & filters, scrap metal, and electronics, see Table 12 below.

Table 12: EXISTING SOLID WASTE COLLECTION AND DISPOSAL SYSTEM																			
	MSW	BULBS	WASTE OIL/FILTERS	TIRES	ANITFREEZE	EWASTE	SCRAP METAL	FURNITURE	MATTRESSES	CONCRETE	SHINGLES	DEMOLITION	HHW	BRUSH/YD WASTE	RAILROAD TIES	BOOKS (HARD & SOFT COVER)	BATTERIES	CARTRIDGES/TONERS	PHARMECEUTICAL
LANDFILLED	X-2013							X	X			X							
INCINERATED	X-2014												X						X
REUSED								X											
REPURPOSED										X	X			X	X				
RECYCLED		X	X	X	X	X	X						X			X	X	X	

There is one MPCA approved permit by rule transfer station facility in the County Located at 23330 Co. Rd. 47, Osage, MN. Because many areas of the county are very remote with a sparse population and are not served by heavy haul roads making door to door collection in some parts difficult, this site is a very important component of our waste management system. This allows our rural residents in eastern Becker County an opportunity to deposit their household garbage. In 2012, the county collected 609 cubic yards of MSW and in 2011, 440 CY collected, up 38 %. We also accept recyclables such as aluminum and tin cans, plastics, cardboard, glass, and paper (newspaper, office paper, and magazines). In addition to having containers for garbage and recyclables, we also provide containers for used furniture, mattresses, scrap metal, tires, and electronics, household hazardous waste and demolition material as well. All waste is transported to the main transfer station where it is weighed prior to consolidation with other waste. A site location map is included as Figure 3 in Chapter II. The County will consider establishing additional sites as need arises.

Private waste haulers collect the majority of solid waste produced by County residents and businesses, and haulers operate under an open collection system. In 2011, an estimated 80 percent of all waste was collected through contracts with a private hauler for waste collection services. In 2012, the County collected $1,915.00 for 2013 in license fees from solid waste/recycler haulers.

All licenses holders are required to utilize a volume based rate structure and report annual MSW and recycling tonnage to the County. The customer pricing rates of the private haulers vary depending upon the location in the County, frequency of collection, and other factors. Licensed collectors haul MSW collected in the County to the Becker County Transfer Station, located in North of Detroit Lakes, where presently, waste is consolidated and transferred by truck to the Fargo, ND landfill.

Becker County's solid waste management program is funded primarily through processing facility tipping fees, commodity sales, SCORE funds, grants, and license fees, and a solid waste management fee collected through the property tax system. State funds to the County are not increasing while the costs for public programs are expanding to address additional environmental protection and energy needs. Becker County recognizes the need for government involvement in subsidies, incentives, and other mechanisms that promote or support solid waste management and environmental protection activities.

Solid Waste Ordinance

Becker County has a solid waste ordinance to provide for solid and hazardous waste regulation as required by State law. The Becker County Solid Waste Ordinance was originally adopted in 1986 and was amended several times to incorporate new State mandates and other County requirements. The County Board adopted the latest solid waste ordinance in 2012, and is presently working on writing a solid waste ordinance that will allow the County to control

the flow of MSW in and from the County. A copy of the Becker County Solid Waste Ordinance is included in Appendix A.

Opportunities for Improvement

It is the goal of Becker County to ensure that waste generated in the county is disposed of in as environmentally, economically sound, and efficient manner as possible. Becker County will research new ways to increase the amount of waste recovered for reuse, beneficial use or recycling, and to continue to reduce the amount of waste landfilled. Possible opportunities for improvement include:

- Identify waste not currently entering the waste stream and mechanisms to capture the waste.
- Construct a new material recovery facility which will allow the County to expand mechanical separation of metal volumes and a greater variety of waste products.
- Evaluate organics recovery opportunities from the current waste stream.
- Develop an organic waste composting facility.
- Other abatement alternatives could include looking for ways to reuse waste products, and expanding the recycling program to more products.
- Introduce a flow control ordinance to ensure the minimum amount of waste generated from with the county is directed to the PRRF in the future.

Investigation of Feasibility of Opportunities

The county will continue to assess options to improve the quality and quantity of MSW delivered to the PRRF, as well as to improve its education, HHW, and recycling programs to ensure efficient and environmentally sound operation of the facilities.

Becker County will continue to assess the opportunities identified above in "Opportunities for Improvement." The following process will be used:

- The County will conduct research through contact with other counties with similar circumstances who have implemented programs to reduce the amount of onsite disposal in their county. Information gathered will include the cost of the systems implemented, the time commitment required, problems encountered and the effectiveness of the system. Additionally, Environmental Services staff will conduct operational annual reviews. State agencies such as the MPCA will also be consulted as sources of information on methods to increase collection of waste in rural areas.
- Similarly, regional opportunities for improvement will be examined in cooperation with the Counties participating in the PLMSWA and other neighboring counties. Other counties with incinerators will be contacted and information gathered on the costs of the system implemented, problems encountered, and the effectiveness of the improvements.
- Along with the PLSMWA Joint Powers agreement, Becker County will continue to work with White Earth Nation/*Gaa-waabaabiganikaag* on solid waste issues and to develop long term beneficial collaboration on all waste streams such as HHW, recycling, education and composting.

Becker County will strive to implement these opportunities for improvement as economics, politics, and regulations allow.

Waste Abatement Policies and Programs

1. Source Reduction

General Policy and Goals

Becker County recognizes that source reduction is a long-term alternative heavily dependent on public education and changing attitudes and habits of the public. By promoting such practices as purchasing reusable rather than disposable items and re-using items which may have additional uses, the amount of material entering the waste stream can be reduced.

It has been and will continue to be the policy of Becker County to adopt optimistic goals, and to periodically evaluate those goals and Becker County's achievement of them. Becker County hopes to reduce the waste generated each year by promoting source reduction, as well as reuse and recycling. Becker County will continue to try to exceed a minimum of 3% in annual source reduction.

Existing Program

Becker County has been active in implementing programs to promote source reduction. The County has developed various public education programs on waste reduction throughout the County. These programs have included information on waste reduction as well as recycling and reusing. Residents are encouraged to purchase and use products in a manner which minimizes waste discards.

A prime target of the education efforts has been the public school system. Each of the five school districts in the County has been visited. In some cases, a presentation is given to every class, while in other cases, specific age groups are targeted. Environmental information is distributed to the schools for use in the teaching curriculum.

In addition to schools, presentations are made to community groups, service organizations and clubs, including 4-H. Some of the 4-H'ers have gone on to become involved in community pride projects. Community education classes continue to be a strong partnership with the Environmental Services Department.

Media events promoting waste reduction have been ongoing and include advertising in local newspapers, radio announcements, radio call in programs and for the last several years a regional access weekly program called Talkin' Trash'.

Becker County will continue to educate the public about source reduction in purchasing and utilizing other options. Examples of this include: reduction of the volume of office paper used in county buildings is done through encouraging double-sided copying, electronic communication, encouraging reuse through sharing un-needed items throughout county offices, and reusing one-sided printed paper as notepads. In addition the County Board has switched to using electronic board packets instead of paper board packets. The County uses these examples as a way to show schools, municipal offices, hospitals, and business how to reduce waste. Offices, institutions, and all public agencies, are encouraged to use as little paper as possible by implementing a double-sided copying policy and electronic transfer of information. Becker County encourages procurement practices that encourage source reduction in every public agency by leading by example and sharing information on how to implement procurement practices.

Local businesses are contacted regarding source reduction and recycling. Waste haulers are asked to be aware of and develop a strategy for commercial generators that have materials that are reusable or recyclable. The County will continue to expand public outreach to residents and businesses.

The County annually collects the volume of waste which individual businesses in the County generate, and businesses are charged a solid waste assessment based on that volume. Since solid waste fees are based on the amount of MSW produced, these businesses have incentive to reduce the amount of waste produced through source reduction and recycling.

The County Environmental Services Director has met with haulers in the area concerning volume based rates for residential customers. Haulers have implemented volume based pricing; however, the large number of haulers operating in the County make it difficult to devise meaningful volume based rate structures in a uniform and universally agreeable manner due to limited staffing to monitor and enforce such a program.

Other Specific Source Reduction Activities

Becker County has implemented the following internal source reduction activities:

- Waste audits or surveys of at least three county facilities in the past three years targeting source reduction opportunities.
- Distribution of materials on source reduction to county staff and all department heads.

The County has provided the following kinds of direct assistance to businesses and institutions to help identify and implement source reduction activities:

- Ongoing on-site assistance.
- Ongoing telephone assistance.
- Distribution of source reduction brochures, flyers, and posters to county businesses.
- Surveyed businesses regarding source reduction activities.
- Produces written success stories of business source reduction results.
- Met with businesses to do waste reduction plans/ waste audits

The County has conducted the following activities to promote source reduction to County residents:

- Distributes brochures, flyers and posters to residents.
- Hosts events for Waste Reduction
- Hosts an annual meeting with Township/Local Units of Governments to discuss general solid waste information as well as waste reduction, recycling, and HHW.
- Develops, helps finance, and advertises reuse programs.
- Develops and advertises source reduction actions to reduce HHW.
- Visits schools to promote source reduction.
- Conduct several community education classes such as: composting, waste reduction in business, reducing toxins in the home.
- The County hosts a regional solid waste informational weekly TV show called “Talkin’ Trash”

In solid waste management planning, most attention is focused on determining what to do with waste after it has been generated. An alternative approach is to focus on generation rates and reducing the amount of waste which can be managed.

Specific Programs to be Developed

Becker County has a very active waste education program in place which promotes and supports source reduction. To further meet its goals, Becker County intends to:

- Continue to utilize the waste education program to promote waste reduction activities.
- Investigate the following options:
    - Promote waste reduction activities to be practiced by County employees,
    - Promote waste reduction activities to be practiced by schools, and municipalities.
    - Initiate recycling activities in businesses that have not done so previously by reviewing waste volume survey reports and develop a waste audit program.
    - Development of a multi-media program- web page, Facebook, Twitter, etc.

Responsible Persons

Source reduction program development and implementation will be the responsibility of then County Solid Waste Educator. This individual will work closely with the Solid Waste Director.

Required Staff Time

It is estimated that roughly 700 hours are devoted to education and promotional efforts regarding waste reduction.

Program Budget

The 2012 annual budget for waste reduction activities were $4,100.00. More information can be found in Appendix 2.

Implementation Schedule

Becker County intends to continue with the existing programs and will continue to initiate new activities, most specifically with the business sector.

2. Waste Education

General Policy and Goals

It is the policy of Becker County to promote all of its solid waste management programs through education.

Existing Programs

Becker County educates all of its citizens, businesses and institutions about how to reduce, reuse, repair, recycle and properly manage solid waste. Becker County's waste education program includes, but is not limited to, education in the following program areas:

- Source reduction
- Recycling
- Yard waste management
- Waste-to-energy incineration
- Land disposal
- Waste tires
- Major appliances
- Used oil
- Lead acid and dry cell batteries
- Household hazardous waste
- Demolition debris
- On-site disposal
- Hazards of Burn Barrels
- Energy Conservation
- E-waste proper disposal

Becker County uses various methods and media to provide education about reduction, reuse, repair, recycling and proper waste management. The methods and media include, but are not limited to, the following:

- Ongoing on-site assistance.
- Ongoing telephone assistance.
- County Board resolutions.
- Waste audits and surveys.
- Distribution of fact sheets, brochures, flyers, posters, pamphlets, etc.
- Use of traveling displays.

- Use of on-hand and MPCA videos.
- Use of the regional community television channel
- Newspaper stories and advertising.
- Publishing information on how, when and where to recycle at least every three months.
- Participating in and hosting events highlighting waste reduction information.
- Speaking opportunities such as in schools, at civic meetings, fairs, etc.
- Radio PSA's, advertising, and speaking opportunities.

Specific Programs to be Developed

Becker County intends to continue its waste education program which includes all of the County's solid waste management programs and all possible methods and media.

Program Budget

The county's waste education program budget was $4,100.00 in 2012. More information can be found in Appendix 2.

3. Recycling

General Policy and Goals

Becker County is committed to providing opportunities to recycle by means of a comprehensive recycling program for the County, where items considered to be recoverable are separated out of the waste stream for re-manufacture or reuse. Recycling tonnages collected, processed and marketed and future projections for the planning period are located in the goal volume table provided in Appendix 1.

Becker County has always been of the opinion that the best way to increase participation in recycling are:

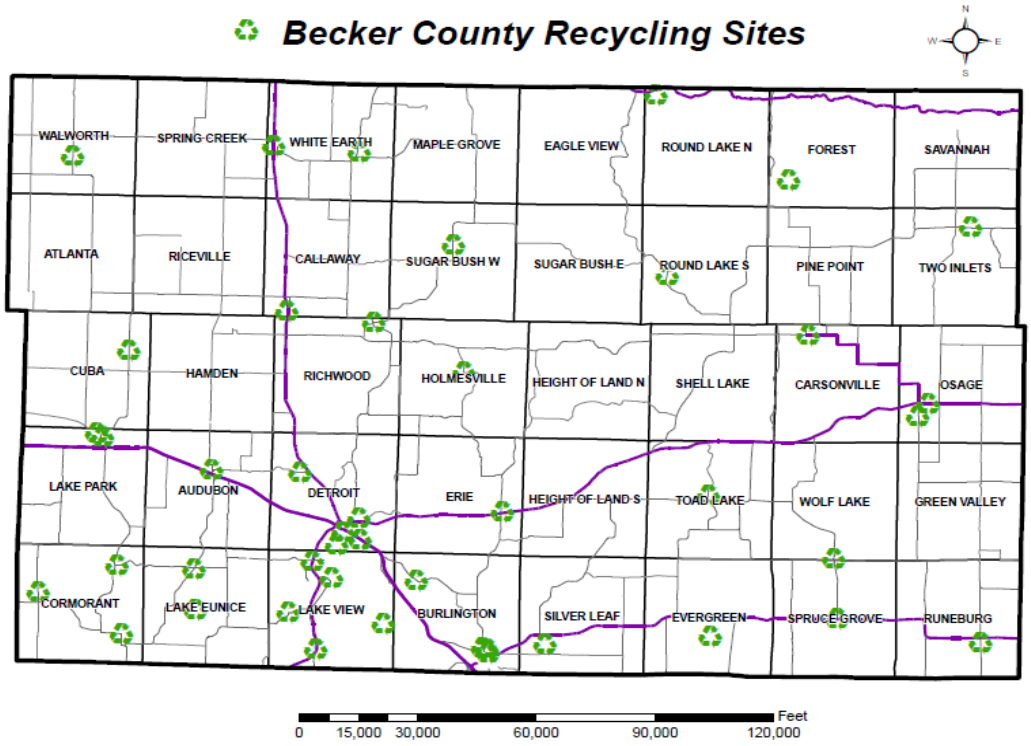
1. Education
2. Making recycling readily and conveniently available. The County achieved increased volumes by increasing site capacity, allowing the public to combine some commodity streams, and creating additional public drop-off sites. Becker County has not implemented mandatory recycling as a means of improving participation.

Existing Program

Varied recycling efforts include the County working with local units of government and Tribal entities, miscellaneous business efforts, and operation of a privately owned redemption center currently exist in Becker County.

Operation of the Becker County Material Recovery Facility (MRF) was opened in May of 2011. This facility processes materials collected at the County 47 recycling sites. Those materials are glass, paper (newsprint, office paper, and magazines), metal (aluminum, bi-metal cans and scrap metal), cardboard, and plastic bottles (#1-#7). In 2012, the County collected and processed 13,217 tons of recyclables for a recycling rate of 41 percent See Recycling sites below in Figure 6.

Figure 6



Becker County has a part-time Recycling Coordinator. The County has designated a portion of its budget for recycling and developed an extensive recycling plan. The County is requesting state funding assistance for a new material recovery facility and new transfer station through the Capital Assistance Grant Program.

Through the extensive network of recycling sites and the potential of collecting recyclables curbside in the City of Detroit Lakes, the County is confident that its' waste abatement goals can be attained. Becker County will focus on recycling in multi-unit dwellings and expansion of recycling at local businesses to increase recycling volumes in the future.

Currently, commercial and Industrial recycling efforts focus primarily on cardboard. Becker County is collecting cardboard from some businesses in the County, as well as private haulers recycling cardboard. Although cardboard is the typical commodity being recycled, we are seeing the commercial sector interested in recycling other commodities such as plastic, metal, glass and paper.

Becker County collects tin, aluminum, corrugated cardboard and some plastics at all Becker County government offices. While other units of local government do a good job of recycling, many do so by utilizing the County collection system while others choose to either have a private hauler or deliver their own recycling to take advantage of recycling redemption, see Table 12 and figure 7.

Becker County understands the need to take an active role in recycling operations. By updating the County recycling program in 2011 and continuing to invest and develop the program, the County is committed to reducing waste being landfilled or incinerated. The County will continue to promote source separation through education, as well as ongoing review of operations to be completed annually.

Additional recycling services are provided by two private businesses: Minnkota Recycling which has a source separated redemption center located in Detroit Lakes and headquarters in Fargo, ND; and Waste Management who collects single stream commodities and in Becker County and hauls all recyclables to its processing facility in Minneapolis/St Paul, MN .

Table 13

Becker County Recycling Composition Analysis 2007-2012

Material	2007	%	2008	%	2009	%	2010	%	2011	%	2012	%
Paper	11,800	90	8,718	80	8,746	73	7,313	76	6657	82	6,450	62
Metal	166	1	108	1	172	1	220	2	634	8	895	9
Glass	500	4	467	4	444	4	603	6	129	2	481	5
Plastic	107	1	607	6	582	5	603	6	94	1	569	5
Organics	0	0	0	0	0	0	0	0	0	0	146	1
Other	0	0	0	0	0	0	0	0	0	0	47	0
Textiles	39	0	496	5	930	8	121	1	12	0	219	2
Problem Materials	553	4	568	5	1,058	9	785	8	581	7	1,572	15
Totals:	13,165		10,964		11,932		9,645		8109		10,380	

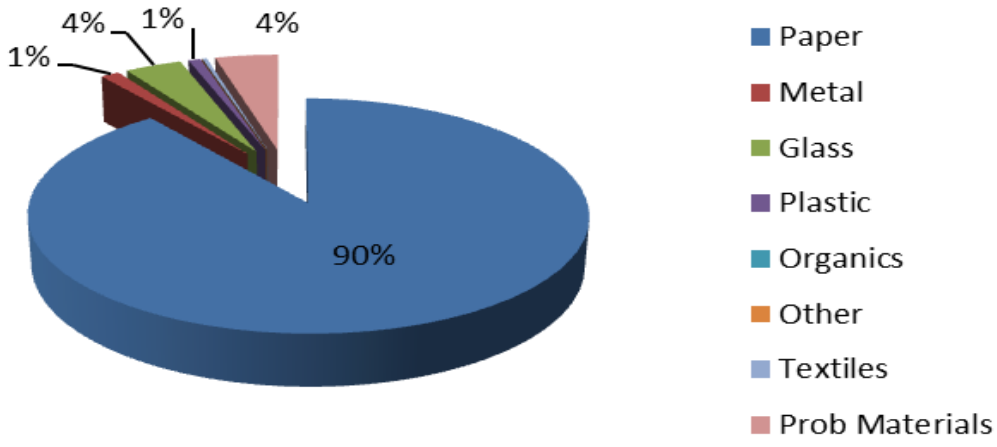
The changes in volume of materials being recycled has to do with better documentation of commercial estimated volumes for the SCORE report. In 2012 we instated a much more efficient report in which we received much 'truer' volumes.

The changes in volume of problem materials between 2007 and 2012 are reflective of the improved SCORE survey and the increased number of direct calling to businesses such as car dealerships and automotive service stations resulting in better documented volumes.

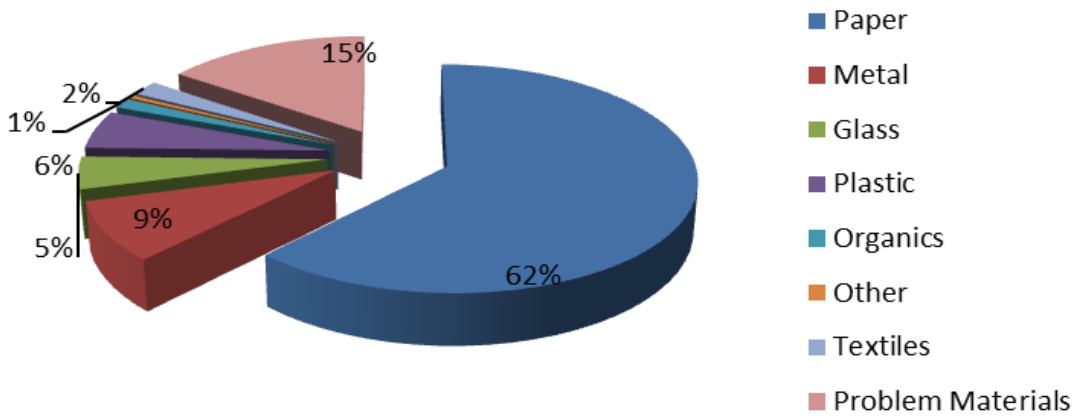
Figure 7

Becker County 2007 & 2012 Recycling Composition Comparison

Becker County 2007 Recycling Compostion



Becker County 2012 Recycling Compostion



Source: MPCA SCORE Reports

Specific Programs to be Developed

Becker County is committed to a comprehensive recycling program where items considered to be recyclable are separated out of the waste stream for remanufacture into a similar product or for reuse. Becker County believes that recycling is essential for the following reasons:

- To reduce the amount of raw garbage being incinerated or landfilled;
- To reduce the amount of ash going to the landfill;
- To reduce reusable product going to the landfill;
- To reduce the potential for hazardous air emissions;
- To reduce the potential for ash to be classified as hazardous;
- To improve the quality of fuel at incinerator facilities; and conserve renewable and nonrenewable resources.

Recycling is a long-term alternative that is heavily dependent on continued education efforts. Becker County has taken a step toward its recycling goals by developing a recycling plan and staffing a part-time Waste Educator/HHW Coordinator. Becker County intends to reduce its waste stream by continuing to develop its recycling program.

Efforts are being made to increase commercial and industrial recycling tonnages by targeting public education efforts to specific businesses based on the annual waste survey.

Recycling efforts will continue to be promoted through the public education program. The County will closely monitor performance of the tasks associated with transporting and processing recyclables. The County will repair and replace recycling equipment as needed, to ensure that the program can continue to operate into the future.

Market fluctuations have and are expected to continue to be a problem for the County. To resolve this issue the County is seeking local markets and uses for recyclable materials such as the use of glass aggregate in county road projects, selling paper to a local insulation manufacturer, and using old torn tar shingles on local paving projects. The County also encourages the state to reaffirm its commitment to developing markets for greater Minnesota counties. The County anticipates approximately 64 % percent recycling of its MSW by the end of the planning period.

County's Intentions*:*

- Maintain the County-wide recycling programs that are in place and operational.
- Research recycling opportunities for additional commodities such as milk cartons, carpeting, plastic film, to capture from the waste steam.
- Meet goals for capturing materials in the waste stream for recycling.
- Monitor the recyclable collection of commodities on a weekly, monthly, and annual basis.
- Seek out local markets for recyclable commodities.
- Urge the state to foster the development of local markets.
- Work with regionally with neighboring counties to assist possible market development of recyclable commodities.
- Capture additional materials from the waste stream sent to the PRRF.

Implementation Schedule

Becker County will maintain and likely expand its current recycling system into the future.

Program Budget

The County's annual recycling budget for 2012 was $326,000. More information can be found in Appendix 2.

4. Yard Waste Management

General Policies and Goals

Minnesota Statute 115A.936 bans the disposal of yard waste at landfills and incinerators. Becker County recognizes that yard waste disposal in the mixed municipal waste stream can be reduced by providing convenient yard waste composting sites and by promoting backyard composting. Becker County intends to continue to partner with local units of government to deal with composting of yard waste at existing sites and is committed to further development of alternative sites and uses for yard wastes such as for agricultural purposes.

It has been and will continue to be the policy of Becker County to adopt efficient programs, and to periodically evaluate those programs and Becker County's ability to achieve them. Becker County intends to reduce the amount of solid waste disposed of in facilities by the use of yard waste composting.

Existing Program

The County's yard waste education program informs residents that while there are drop-off compost and yard waste sites throughout the County, a potentially easier option for residents is to start their own backyard compost site. MPCA information regarding this type of composting activity is distributed to residents at many events, through the County web site and through the regional program we host. Residents are also encouraged to leave grass clippings on lawns after mowing when practical and are also encouraged to clean grass clippings from street gutters where applicable so as not to allow entering into our many waterways. Becker County accomplishes this through education by news releases, handouts, TV, radio and public speaking.

There are currently thirteen (13) public yard waste sites in the County. Relative to most non-metro counties, this is a significant number of sites. The sites are well dispersed throughout the County, so most residents do not have to haul their yard waste a long distance to a collection site.

Yard waste is currently collected and composted at sites: the Main Transfer Station, Osage Transfer, Detroit Lakes City/Old Stony Road, City of Frazee/Tri-Powers, Lake View Townships -3sites, Cormorant Township, City of Callaway, City of Audubon, City of Lake Park, City of Ogema, Lake Eunice Township sites.

At most of the public sites, the management of the compost piles has been sporadic. To ensure a good uniform compost product which is attractive for residents and businesses to use, periodic turning and management is recommended. Becker County has cooperative agreements with the larger sites to grind brush that is used as either fuel to generate electricity and/or as mulch for county residents.

At the County/Local Units of Government sites, the leaves are placed in heaps in an area set aside for the yard waste composting operation. On-site equipment is used as available, to turn and aerate piles. At each of the facilities, on-site equipment and personnel are available on an as needed basis. The facility operators at the Transfer Stations occasionally turn the compost piles which will help to facilitate the decomposition process.

Final compost at each of the sites is available to the general public at no cost if self-loaded. The public is allowed to access the site and acquire the composted material by their own means. This policy will be continued into the future. It is anticipated that the number of households will increase significantly in future years. With the increased input of yard waste at the sites it will become more important to practice effective pile management to ensure that an attractive product is generated in an efficient manner.

Relative to other program areas, less funding and time are needed for the yard waste composting program and no formal operations plan is followed at the compost sites. Compost generated in the program is not formally marketed but is given away to any interested person for use as a soil conditioner and also used as demolition landfill final cover.

Becker County intends to continue the use of existing County sponsored yard waste composting sites. It is assumed that the other local units of government will continue to improve compost pile management at their sites. The

County will also allocate sufficient equipment and staff at the sites as needed to ensure effective composting operations.

Specific Programs to be Developed

Becker County will continue the following:

- Heighten awareness of yard waste composting issues.
- Educate the public regarding the fact that yard waste cannot be landfilled or burned in processing facilities.
- Identify the sites at which yard waste is accepted and the hours which they will be open.
- Educate residents and businesses about all of the above and the many ways that compost product can be used.
- Take necessary steps to meet State Law requiring that no yard waste be disposed of in the land or in processing facilities.
- Encourage each city /township to continue its yard waste program.

Although there are already a good number of compost areas in the County, Becker County will investigate other sites which may be utilized.

Implementation Schedule

Becker County will continue to maintain its current programs.

Program Budget

The County's annual budget for managing its yard waste program is $10,000. More information may be found in Appendix 2.

5. MSW Incineration and Energy Recovery

General Policy and Goals

Becker County recognizes the need to minimize the amount of municipal waste landfilled. Participation in the PLMSWA and the Perham Resource Recovery Facility reflect the County's commitment to an overall policy of utilizing waste-to-energy as the primary management method. Issues which arise concerning incineration are of vital significance to the County such as air quality and ash disposal.

Existing programs

Becker County, along with Otter Tail, Todd, and Wadena Counties formed the Prairie Lakes Municipal Solid Waste Authority (PLMSWA) in May of 2011. PLMSWA is a joint powers board made up of commissioner representatives from the four counties. In June of 2011 PLMSWA acquired ownership of the PRRF. In doing so the PLMSWA became responsible for the $8.075 million grant from the State of Minnesota for development and expansion of the PRRF which includes expanding the combustion capacity of the facility and the addition of a material recovery facility (MRF) designed to process fuel before combustion. PLMSWA has begun the permitting process for expansion.

Specific Programs to be Developed

Currently the County will continue to send al it's MSW to the Fargo Landfill until the expansion is complete and the PRRF has the capacity to take Becker County waste in mid-2014.

Implementation Schedule

2014	Send MSW to PRRF
2015-2016	Develop a new source separated material recovery facility
2017-2018	Develop source separated organics composting program

Program Budget

The County estimates that in 2014 approximately 14% of its MSW will be sent to the WTE/PRRF. From 2015-2022 it is estimated that approximately 31% of the MSW will be going to the WTE facility. This change from landfilling MSW to sending MSW to WTE will result in higher disposal costs. It is estimated that the disposal costs will increase by approximately 38% per ton, increasing disposal costs by approximately 71%. This added cost will be paid by increasing tip fees and subsidizing costs through a residential solid waste assessment in the future.

6. Land Disposal of MSW

General Policy and Goals

It is the policy of Becker County to reduce reliance on land disposal as much as possible.

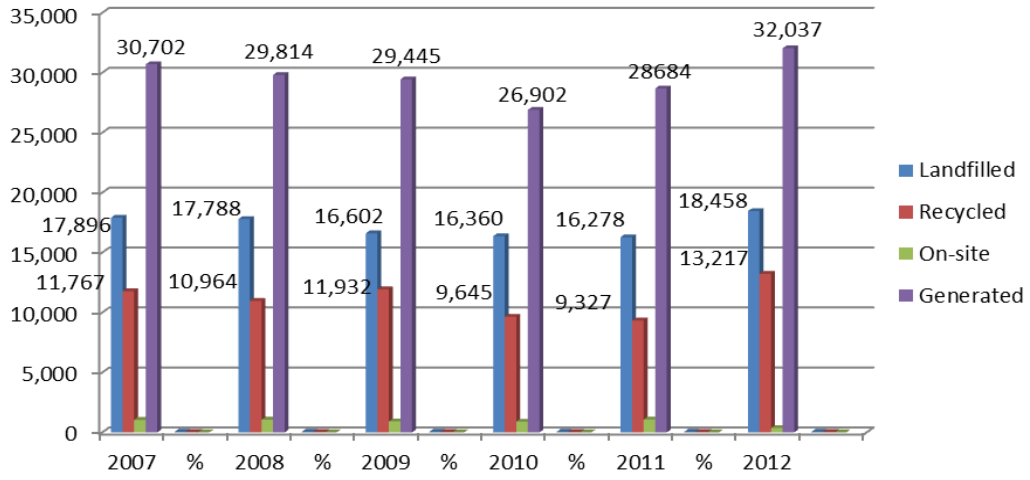
Existing Programs

Becker County does not operate an MSW landfill for disposal of waste. Presently, the County transfers its waste to the permitted MSW landfill in Fargo ND. In 2014, the majority of Becker County Waste will be transferred to the PRRF. The volume landfilled in Fargo will be decreased greatly. For 2007-2012 Becker County Waste Generation & Recycling & Disposal Analysis see Table 13 & Figure 8.

Table 13
Becker County Waste Generation, Recycling & Disposal Analysis 2007-2012
(tons)

Method	**2007**	**%**	**2008**	**%**	**2009**	**%**	**2010**	**%**	**2011**	**%**	**2012**	**%**
Landfilled	17,896	58	17,788	60	16,602	56	16,360	61	16,278	57	18,458	58
Recycled	11,767	38	10,964	37	11,932	41	9,645	36	9,327	33	13,217	41
On-site	1,039	3	1,062	4	911	3	897	3	1,068	4	362	1
Generated	30,702		29,814		29,445		26,902		28684		32,037	

Figure 8
2007-2012 Becker County Waste Generation, Recycling and Disposal Analysis



The Becker County Landfill

The Becker County Landfill has been closed since 1990. Presently, the retired landfill site is considered a state superfund site and therefore the waste is owned and managed by the Minnesota Pollution Control Agency and the land is owned by the County.

The location of the Becker County Transfer Station and Demolition Landfill is 24413 County Road 144, Detroit Lakes MN (3 mile north of Detroit Lakes). Legal description is- the Southwest Quarter of the Northeast Quarter(SW ¼ NE ¼) if /section 17, Township 139 North Range 41 West of the Fifth Principal Meridian, Detroit Township, Becker County, Minnesota. The site is immediately bounded by residential on the east and west sides with agricultural lands to the north and south.

Specific Programs to be Developed

Becker County intends to continue to minimize the amount of MSW that is ultimately landfilled through the waste abatement programs identified within this plan over the next ten years.

Program Budget

In 2012, the County's land disposal budget was $832,000. Anticipated budget to send MSW to the PRRF in the future will result in the MSW disposal budget increasing by approximately 71%. More information can be found in Appendix 2.

Problem Materials Recovery & Management

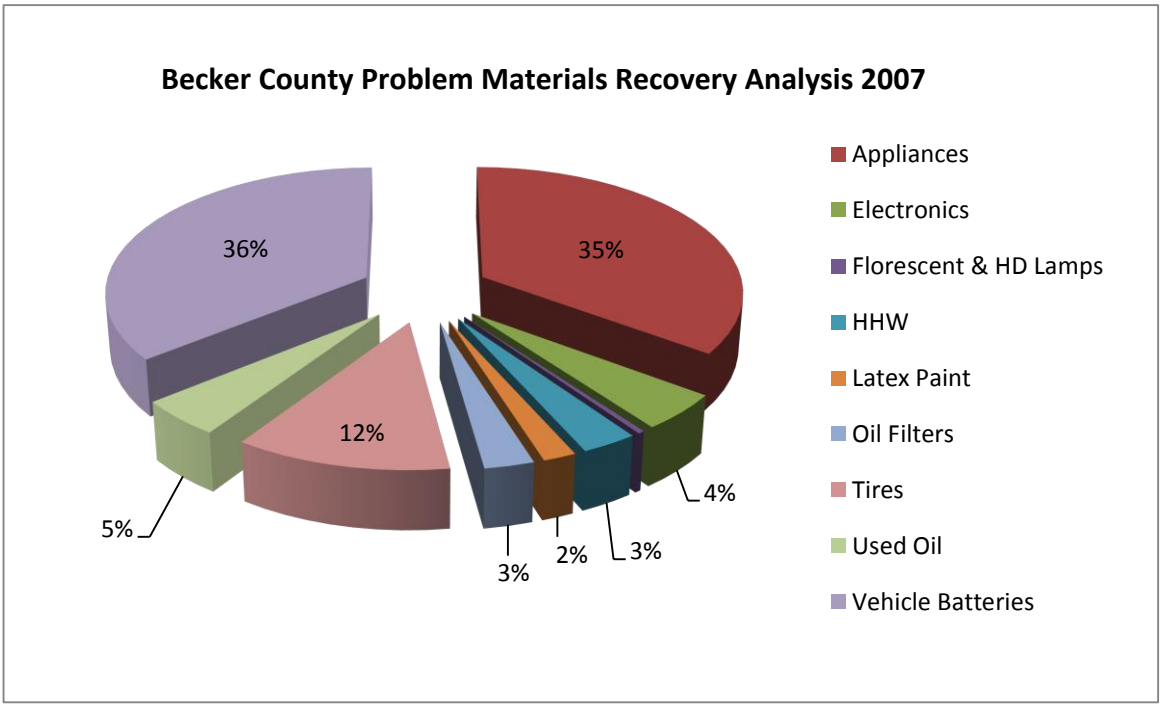
Becker County has programs for the following:

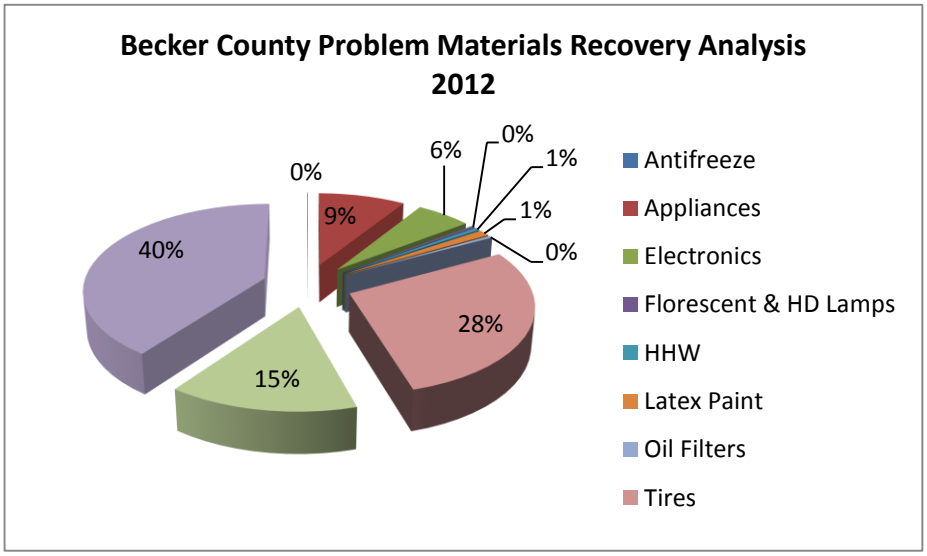
- Waste Tires
- Appliances
- Electronics
- Lead Acid Batteries
- Used Oil & Filters
- Antifreeze
- Mercury Switches
- Dry Cell Batteries
- Household Hazardous Waste

Table 14: Becker County Problem Material Recovery Analysis 2007-2012 (Tons)

Material	2007	%	2008	%	2009	%	2010	%	2011	%	2012	%
Antifreeze	0	0	1	0	1	0	1	0	1	0	1	0
Appliances	194	35	199	35	546	52	258	33	196	31	140	9
Electronics	26	5	43	8	91	9	78	10	102	16	89	6
Florescent & HD Lamps	2	0	3	1	4	0	2	0	6	1	6	0
HHW	17	3	1	0	2	0	6	1	7	1	9	1
Latex Paint	10	2	18	3	10	1	9	1	10	2	18	1
Oil Filters	15	3	15	3	15	1	15	2	15	2	7	0
Tires	65	12	65	11	148	14	170	22	76	12	447	28
Used Oil	26	5	26	5	43	4	47	6	26	4	228	15
Vehicle Batteries	198	36	198	35	198	19	200	25	201	31	628	40
Total:	553		569		1058		786		640		1572	

Figure 9-Becker County Problem Materials Recovery 2007-





Becker County began recycling electronics waste (e-waste) in mid-2007. The increased volume can be attributed to the establishment of said program. The spike in tire volumes in figures 9 & 10 are due to increased phoning of businesses by Environmental Services staff which leads to better documentation.

7. Waste Tire Management Program

General Policy and Goal

Becker County has a sound system of waste tire management that includes the proper disposal of waste tires through education, collection, and enforcement policies. It is the policy of Becker County to provide for the proper management and disposal of waste tires.

Existing Programs

Becker County does have one known illegal tire dump located at 22442 Martha's Road, Detroit Lakes, MN. The County is in the process of using legal action to force the cleanup of this property. Sporadic dumping is resolved through enforcement of provisions within the County Solid Waste Ordinance. The County Ordinance reflects the requirements set forth in M.S. Chapter 115A.90-115A.914. The problems associated with large stockpiles of used tires are:

- Waste tire stockpiles are a fire hazard. Once a tire fire starts it is extremely difficult to put out and the smoke is noxious.
- Mosquitoes can breed in pools of water within the tire piles creating a public health issue.

Waste tires are accepted at business outlets in Becker County which sell tires. The maximum number of tires which can be stored at those types of businesses is 500, according to State Rules. The maximum number of tires which may be stockpiled at sanitary landfills or transfer stations is 1,000 unless the facility is permitted as a tire storage or tire transfer area. Over the past 5 years, the County collected on average 115 tons per year. In 2012, tires represented 10% of all problem materials collected. There is a large spike in the volume of tires in 2012 due to better information solicitation to businesses and documentation from staff with SCORE surveys.

Residents of Becker County may bring four (4) passenger tires per visit at no charge at both the Main and East Transfer sites. Additional tires costs vary depending on tire size and quantity. Annually, the County hires a licensed hauler to handle waste tires, transporting stockpiled tires from County collection points to a tire recycling facility. Tires are generally chipped, recycled into new rubber products or used as fuel.

Specific Programs to be Developed

Becker County will continue to use the existing storage areas and will continue to regularly have the tires hauled from the areas for recycling by a licensed tire transporter.

The fees charged to citizens for dumping waste tires at county facilities will be regularly reviewed. The fees ideally should cover the cost of removal and ultimate recycling of stockpiles. However, if the rate is too high, unauthorized dumping of waste tires may develop.

Program Budget:

The County's budget to manage used tires during 2012 was $13,000. More information can be found in Appendix 2.

8. Major Appliance Management

General Policy and Goals

It is the policy of Becker County to provide for the proper management and disposal of appliances. White goods will be collected and removed for recycling at waste collection sites to help maintain order and efficient operation of the facilities. The county will process and ensure that any fluids and Freon are removed from appliances according to state law to avoid potential environmental and public health problems.

Existing Programs

White goods include such materials such as refrigerators, stoves, air conditioners, water heaters, and other appliances will continue to be collected and stockpiled for recycling at our two transfer sites. Becker County processes all their own metal, with staff being licensed to extract hazardous materials. Since 2010, Becker County has marketed their metal directly to metal vendors. From 2008 to 2012, the County collected on average 266 tons of major appliances each year. In 2012, major appliances represented 3% of all problem materials.

Specific Programs to be Developed

Becker County intends to continue its appliance collection and management program over the planning period.

Program Budget:

In 2012, the County's budget to manage major appliance was revenue neutral. The revenue from the sale of scrap appliances offset any operational costs associated with the processing and disposal of appliances. More information can be found in Appendix 2.

9. Electronics

General Policy and Goals

It is the policy of Becker County to provide proper management and disposal of electronics. Electronics are collected at Transfer sites and then removed for recycling from the waste collection site to help maintain order and efficient operation of the facilities. The county will ensure that all electronics are removed according to state law to avoid potential environmental and public health problems.

Existing Programs

Electronics include such materials as computers, televisions, printers, copiers lap tops, and any other small electronic devices. Becker County will continue to collect and stockpile electronics for recycling at Transfer sites. A licensed electronics recycler from Wisconsin hauls away all of the electronics on an on-call basis. The amount of electronics collected each year continues to increase as new or improved electronic products are available to consumers. For example, 2008- 43 tons, 2009-91 tons, 2010-78 tons, 2011-102tons, and 2012-89 tons with the average tonnage collected was 81 tons annually. On average, the volume of electronics collected each year represents 9% of the county waste stream

Specific Programs to be Developed

Becker County intends to continue its electronics recycling program at our County owned Transfer Stations and will continue to contract with a Licensed Electronics Recycler to periodically pick up and recycle the electronics that have been collected at these facilities. We will also continue to educate the public on the importance of recycling their electronics.

Program Budget

The County's 2012 budget to manage waste electronics was $30,000. More information can be found in Appendix 2.

10. Used Oil, Oil Filters and Lead Acid and Dry Cell Battery Management

General Policy and Goals

It is the policy of Becker County to provide information on where used oil is accepted within the County and on the proper disposal of used oil, and oil filters. Some used oil is accepted for recycling through the County's Household Hazardous Waste Program.

It is the policy of Becker County to provide information on the proper management of used lead acid batteries and to inform residents that lead acid battery outlets must accept used batteries.

It is the policy of Becker County to promote manufacturer responsibility for dry cell battery management.

Existing Programs

- Used oil, oil filters**,** lead-acid batteries, and dry cell batteries are predominantly handled by the private sector. This handling includes the collection, processing, recycling and disposal:
- Minnesota State Regulations do not allow the disposal of used oil in or on the land.
- Minnesota State Regulations require all retail outlets that sell lead acid batteries to accept used batteries of this type.
- Minnesota State Regulations require that the manufacturer of dry cell batteries provide alternative devices or recycling opportunities for these items.
- On an annual basis, used oil and oil filters combined represent 55% or 856 tons of all the problem materials collected for recycling.

Becker County's existing program consists primarily of educating the public about the regulations noted above, disposal options available in the County, and the hazards of improper disposal. This education is completed through the means and media described in the waste education section of this plan.

Specific Programs to be Developed

Becker County intends to continue collecting used oil, oil filters and dry cell batteries at our weekly HHW collections and through the HHW mobile unit collections that are provided to the residents of Becker County and its regional partners in the summer months. Lead acid batteries will continue to be collected at no charge from residents at the County Transfer Stations and we contract a licensed hauler come to the sites to collect the batteries that have been brought in.

Program Budget

The County's 2012 budget to manage used oil, oil filters and lead acid and dry cell batteries was revenue neutral; vendors are willing to either reimburse the county for some commodities while charging for other commodities. More information may be found in Appendix 2.

11. Household Hazardous Waste Management

General Policy and Goals

Household Hazardous Waste (HHW) includes such materials as paint, solvents, small batteries, pesticides, aerosols, antifreeze, pharmaceutical, cosmetics and household cleaners.

It is the policy of Becker County to provide for the collection and exchange of these materials, and to educate the public about ways to reduce and properly dispose of HHW. Removing HHW from the overall waste stream is an important step in efforts to minimize environmental and public health impacts of any waste management system. This is particularly true with some of the items when incineration is the primary waste management method.

Existing Program

In October 1997, Becker County began holding HHW collections. The regional program consists of a permanent HHW facility located at 24455 County Road 144, Detroit Lakes, MN and a mobile collection vehicle and 24 foot trailer. The program has been widely promoted through the County's waste education program, as well as regionally. Disposal of the waste from collections has been arranged by a contract with the State of Minnesota's Licensed Contractor.

In 2012, Becker County collected 9 tons of Household Hazardous Waste. The County currently has a HHW management component to its waste education program. The primary methods which are used to disseminate

HHW information are staff presentations to civic and business groups and informational bulletins and flyers, periodic news media articles and regional/local accesses channel weekly TV show- Talkin' Trash. The emphasis of these educational efforts is on the following issues:

- Definition of the different types of HHW;
- Information regarding purchasing alternatives to HHW materials for household uses such as cleaning;
- Proper use, storage and disposal of HHW materials; and
- Explanation of the need to keep these wastes out of the waste stream.

Specific Programs to be Developed

The public education activities described above will be continued in the future and will include information regarding the times and locations of collection events. The waste education program will provide information to residents regarding purchasing alternatives to HHW products. For example, residents will be encouraged through informational flyers and community education classes, to use cleaning products and practices that use the least hazardous components.

While the turnout at recent HHW collection events has been normal, these events stimulated substantial interest in the issue on the part of the County residents. It is very likely that the participation rate will show a marked increase in the future. In 2012, participation to bring waste in for disposal was 1,467 people or 4.5 % of the population. Resident utilizing the reuse room equaled 877 people or 2.7 % of the population; Becker County has contracts with Norman, Mahnomen, and Hubbard Counties to operate a regional HHW collection and transportation system. Under this system, the Counties either act as a satellite station to collect HHW, or Becker County provides mobile event collections to service those counties. The county would collect waste materials from the sites and transport those materials to the regional HHW facility in Becker County for processing into containers for final disposal or further processing out of county. In this way, the counties share one of the primary costs associated with HHW programs; i.e., transportation. The mobile collection unit schedules 2-4 mobile collections for County residents on an annual basis. Becker County also collects HHW at both Transfer facilities six (6) days a week. Becker County also provides Agricultural pesticide collection through a partnership with the Minnesota Department of Agriculture (MDA). The County acts a collection agent and the MDA pays for disposal.

New in 2013, Becker County has acquired a Very Small Quantity Generator's License through the MPCA, and will service businesses in a regional area.

The responsibility for developing and administrating the HHW program is the responsibility of the Regional Household Hazardous Waste Program Manager under the direction of the Environmental Services Director.

Program Budget

In 2012, the County's net budget cost to manage HHW program was $64,000. More information may be found in Appendix 2.

Implementation Schedule

Continue the development and implementation of a regional HHW program by further developing the VSQG program offering the benefits of the VSQG program to the other participating counties in the region and other hazardous waste disposal options as they arise in the future.

12. Demolition Debris Management

General Policy and Goals

It is the policy of Becker County to provide for disposal and proper management of demolition debris. Becker County recognizes the need to separate demolition debris from MSW due to the physical characteristics associated with MSW versus demolition disposal.

Existing Programs

Demolition debris collection sites are located:

1. Becker County Main Transfer Station and Demolition Landfill
2. Becker County eastern Transfer Facility
3. Lakes Area Demolition Landfill owned and operated by Hough Inc.

Becker County estimates an incoming quantity of approximately 23,823 cubic yards per year. In 2012 there was 10,000 cubic yards of demolition buried at the Lakes Area Demolition Landfill. This is privately owned and operated facility that is not open to the general public. The County cooperates with the MPCA permit by rule program which includes the review of sites and permits issued by the Agency.

Both facilities accept demolition debris from both residential and commercial customers (East Transfer site limits commercial quantity). Demolition collected at the East Facility is transferred back to the main demolition landfill and is buried on site.

Becker County implemented a demolition (concrete) recycling program in 2006 and began the collection of shingles for recycling. Both products are collected and stored on-site and will be processed and reused periodically when the county can coordinate material volumes and projects for re-use. Recycling of concrete debris and shingles can serve several purposes; one, it can save the homeowner or project developer money; two, it can save space at the demolition landfill; and three, it can help by saving resources necessary to excavate virgin aggregate materials. A total of 21,975 yards have been diverted from being landfilled since 2006.

See table 15 for demolition volume totals 2006-2012

Table 15
Demolition Volume Totals for 2006-2012

TYPE	2006	2007	2008	2009	2010	2011	2012	Total Yds.	Average
TOTAL DEMO RECEIVED (CY)	30003.25	28690	20438.7	19595.13	22842.15	21368.93	21518.5	142938.2	23823.03
DEMO LANDFILLED (CY)	24500	22135	19632.5	17783.88	21456.95	20041.92	16932	125550.3	20925.04
DEMO RECYCLED (CY)	5503.25	6555.5	806.25	1811.25	1385.2	1327	4586.5	21974.95	3139.279
SHINGLES (CY)	N/A	N/A	NA	NA	NA	NA	2536.5		

Source: MPCA Annual Report

Proposed Programs

The County proposes to continue developing the asphalt shingle recycling program, it is anticipated that the volume collected will be ground and sold every 2 – 3 years to local asphalt companies.

In addition to the TOSS program, the County anticipates that it will work on developing a metal and clean wood recovery program from demolition delivered to the County demolition landfill in the future.

Program Budget

The County 2011 budget to manage demolition debris was $60,000. Currently the county utilizes a .5 full time employee to manage the Demolition Landfill.

13. On-site and Illegal Disposal

General Policy and Goals

State law bans burning and burying of solid waste. Becker County has incorporated by ordinance this acknowledgement into its own county regulations.

The County uses newspaper articles and public information meetings to inform the public of the dangers of on-site and illegal disposal. This information is also provided within its waste education programs.

14. Solid Waste Ordinance

Ordinance Status

In 1997 the County adopted a new solid waste ordinance. This replaced the previous solid waste ordinance which had been revised in 1990. Beginning in 2011 the four (4) county members of the PLMSWA began a process of reviewing and revising their respective solid waste ordinances with the intent of making sure that ordinances had similar provisions. The four counties have also discussed their intent on developing waste flow control/designation ordinances. These activities will continue and likely be completed in 2012. **See a Copy in Appendix 5.**

15. Annual Plan Review and 10 Year Plan

Plan Development Timeline

Becker County will develop and submit a new ten year solid waste management plan in 2023.

Responsible Persons

The Solid Waste Management Director will oversee the development of the plan.

Annual Review

The Solid Waste Management Director will review its plan annually to review goals and policies.

16. Contingency to Primary Management System

General Policy and Goals

If the current system were to fail for a short or long term period the County would deliver its waste to a landfill. The County currently has a contract with the Fargo, ND Landfill for disposal of bypass waste. If the system failure was long term the County would begin a process of looking at processing alternatives.

17. Solid Waste Staff

Existing Staff

Becker County Environmental Services Director: manages the overall solid waste program.

Landfill Manager- manages day to day operations of the Main and East Transfer Stations which includes managing the recycling (route collection, processing, and marketing), the demolition landfill, and special waste disposal in cooperation with the Solid Waste Director.

Recycling Coordinator/HHW Regional Program Manager/Waste Educator: provides administers and provides waste education and assists in coordinating Recycling and HHW collections. This individual coordinates the four-county regional HHW program which includes administering collection events utilizing a mobile unit, overseeing the operation of the permanent regional HHW facility, overseeing the administration of recycling accounts and public interface.

Account Payable/receivable/Administrative Assistant: manages financial accounts for the Environmental Services Department and provides office support to all staff.

18. Itemized Solid Waste Budget

Budget Projections

A ten-year budget is included in **Appendix 2**

Future funding needs and proposed sources are provided in the ten year budget.

Ten year budgetary inflation numbers in Appendix 2 range from zero percent for certain fixed items such as Financial Assurance to five percent for higher technology program areas like the resource recovery projects and the recycling program.

19. Solid Waste Program Funding

Funding Policies and Goals

It is the policy and goal of Becker County to maintain funding for solid waste programs as a fund through tipping fees, service fees and miscellaneous charges and material sales.

20. Goal Volume Table

The goal volume table is located in Appendix 1.

Waste Stream Data Input Page

7/9/12 Becker Co's GVT djk PCA draft ← *Spreadsheet Date & Name for reference*

C:\Users\amsette\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\FV3QHEL8\[Copy of Final Appendix 1 Becker County GVT Nov 2013 (2).xlsx]Data Input Page

Note: Fill in all the values in column "B" completely before entering data for the follow-on years

Name of County: Becker
Base Year: 2012

	BASE YR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Becker	Plan Yr #1	Plan Yr #2	Plan Yr #3	Plan Yr #4	Plan Yr #5	Plan Yr #6	Plan Yr #7	Plan Yr #8	Plan Yr #9	Plan Yr #10
Population / MSW Change / yr -- *co's or St. Demographer data*	0.470%	0.651%	0.651%	0.651%	0.674%	0.674%	0.674%	0.674%	0.674%	0.590%	0.590%
Population for Year 2012	32,931	33,145	33,358	33,571	33,802	34,034	34,265	34,496	34,728	34,938	35,148
Persons per Household *(St.Demographer data)*	2.42										
Commercial /Industrial /Institutional waste % of MSW	37%										
Lbs / Capita / day MSW gen. **for On-Site-Disposal** (PCA #)	1.2 *lbs / person / day*										
Population using **On-Site Disposal** of MSW	1,652	1,652	1,652	1,652	1,652	1,452	1,452	1,452	1,452	1,452	1,252
Population % using On-Site Disposal	5.02%	4.98%	4.95%	4.92%	4.89%	4.27%	4.24%	4.21%	4.18%	4.16%	3.56%
Calculated Total MSW Generated	***32,037***	***32,245***	***32,455***	***32,666***	***32,886***	***33,108***	***33,331***	***33,556***	***33,782***	***33,981***	***34,181***

ON-SITE-DISPOSAL - *tons*

	362	362	362	362	362	362	318	318	318	318	274

Organics Recycling - includes source separated residential + commecial SS + food-to-people & livestock but excludes yard waste composting

Problem Materials - ***Banned + other*** = sum of actual tons counted only (ie. excluding generic per capita computed values)= ACTUAL Reported Antifreeze + Appliances + Electronic Appliances + Fluorescent & HID Lamps + Household Hazardous Waste + Latex Paint + Oil Filters + Tires + Used Oil + Motor Vehicle Batteries + Textiles / Carpet + Mattresses + Pallets + Unspecified/Other Recycing

RECYCLING - *tons & Percent Objectives*

Residential	2,767	6,242	6,610	7,082	7,544	8,012	8,133	8,256	8,380	8,498	8,617
Commercial/Industrial/Institutional (documented	5,629	4,909	5,301	5,698	6,184	6,677	6,856	7,038	7,222	7,401	7,583
Organics Recycling (source separated+food-to-people &livestock)	146	163	164	329	497	668	672	677	681	685	689
Mechanical/Hand Sorted @ Resource Recovery Facility		-	240	520	540	560	557	553	550	546	543
Problem Materials - *Banned + Other Recycled*	4,675	4,675	4,675	4,675	4,675	4,675	4,675	4,675	4,675	4,675	4,675
RECYCLING TOTAL -- tons	13,217	15,989	16,990	18,304	19,440	20,592	20,893	21,199	21,508	21,806	22,107

>>>>>>>

(Fill in the Problem Materials estimation cells & lines presented in the adjacent columns for those materials the county collects data on -- Make estimates of increases of specific problem materials if program improvements are planned for those mataerials)

		Yr 1	Yr 2	Yr 3		Yr 5					Yr 10
% Residential Recycling	**- Objectives**	8.6%	19.2%	20.2%	21.5%	22.8%	24.0%	24.2%	24.4%	24.6%	24.8%	25.0%
% Commercial / Industrial / Institutional	**- Objectives**	17.6%	15.1%	16.2%	17.3%	18.7%	20.0%	20.4%	20.8%	21.2%	21.6%	22.0%
% Organics Recycling source separated	**- Objectives**	0.46%	0.50%	0.50%	1.00%	1.50%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
% Mechanical/Hand Sorted @ Res. Rec. Fac.		0.0%	0.0%	0.7%	1.6%	1.6%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%
% Problem Materials - *Banned + Other*		14.6%	14.5%	14.4%	14.3%	14.2%	14.1%	14.0%	13.9%	13.8%	13.8%	13.7%
Total Recycling Percentages (Actual)		**41.3%**	**49.3%**	**52.0%**	**55.7%**	**58.8%**	**61.8%**	**62.3%**	**62.8%**	**63.3%**	**63.8%**	**64.3%**
SCORE Co. Recycling Rate (35% Legislative Objective)		*41.3%*	*49.3%*	*52.0%*	*55.7%*	*58.8%*	*61.8%*	*62.3%*	*62.8%*	*63.3%*	*63.8%*	*64.3%*
Calculated MSW AVAILABLE FOR Resource Rec. + LF		***18,458***	***15,894***	***15,343***	***14,520***	***13,624***	***12,758***	***12,677***	***12,592***	***12,506***	***12,404***	***12,343***

Destination LF's for Co's MSW; Facility Type, & Location

RESOURCE RECOVERY FACILITY from the County

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Perham Resource Recovery Facility WTE Facility - tons tipped	-	-	6,000	13,000	13,500	14,000	13,915	13,830	13,746	13,661	13,576
% Mechanical or Hand Materials Recycling to RR	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*
Mechanical or Hand Materials Recycling to RR - tons	-	-	*240*	*520*	*540*	*560*	*557*	*553*	*550*	*546*	*543*
Non-Processable MSW & Bypass MSW %	15.0%	15.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%
Non-Processable MSW & Bypass MSW - tons	-	-	*960*	*2,080*	*2,160*	*2,240*	*2,226*	*2,213*	*2,199*	*2,186*	*2,172*
--	-	-	-	-	-	-	-	-	-	-	-
% Mechanical or Hand Materials Recycling to RR	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*
Mechanical or Hand Materials Recycling to RR - tons	-	-	-	-	-	-	-	-	-	-	-
Non-Processable MSW & Bypass MSW %	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*
Non-Processable MSW & Bypass MSW - tons	-	-	-	-	-	-	-	-	-	-	-
Total Tipped MSW at RR Facilities	-	-	***6,000***	***13,000***	***13,500***	***14,000***	***13,915***	***13,830***	***13,746***	***13,661***	***13,576***
Total Mechanical or Hand Materials Recycling at RR	-	-	240	520	540	560	557	553	550	546	543
Total Non-Processable MSW & Bypass MSW - tons	-	-	*960*	*2,080*	*2,160*	*2,240*	*2,226*	*2,213*	*2,199*	*2,186*	*2,172*
Total Co MSW to RES REC Fac Combustor - tons	-	-	**4,800**	**10,400**	**10,800**	**11,200**	**11,132**	**11,064**	**10,996**	**10,929**	**10,861**
% of Total MSW to WTE Combustor	0.0%	0.0%	14.8%	31.8%	32.8%	33.8%	33.4%	33.0%	32.6%	32.2%	31.8%

Recycling of Problem Materials/HHW: *(enter only the documented recycled tons the county is aware of below in the yellow cells.*

The annual total value will show in the adjacent PM's RECYCLING line listing)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
MSW Change & Population Change / yr	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%
List the Problem Materials tonnage values the county has documented values for and show anticipated increases due to improved recycling efforts.											
Electronics	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0
Fluorescent & HID Lamps	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Household Hazardous Waste	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Latex Paint	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Mattresses	-	-	-	-	-	-	-	-	-	-	-
Pallets	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5
Textiles / Carpet	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0
Unspecified/Other	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
PM's Legislatively banned from landfill disposal											
Appliances	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0	140.0
Antifreeze	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Oil Filters	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Tires *(excludes tire shred combustion)*	447.0	447.0	447.0	447.0	447.0	447.0	447.0	447.0	447.0	447.0	447.0
Used Oil	228.0	228.0	228.0	228.0	228.0	228.0	228.0	228.0	228.0	228.0	228.0
Vehicle Batteries	3,465.0	3,465.0	3,465.0	3,465.0	3,465.0	3,465.0	3,465.0	3,465.0	3,465.0	3,465.0	3,465.0
Problem Material Recycling Totals	4675	4675	4675	4675	4675	4675	4675	4675	4675	4675	4675

FOR YOUR INFORMATION for comparison on the PCA's hypothetical Problem Material Generation Values for the County

Background Information: ***PROBLEM MATERIALS GENERATION RECYCLED values used for MPCA SCORE generic baseline values***

			SCORE Generic Calculated Tonnage
	Population 32,931		
Appliances	*appliances / capita /yr = 0.14*		
	# / appl / yr= 4,610		
	Lbs/appliance 150		
	Recycling Rate & TONS=	***80%***	***276.6***
Batteries	*no. / cap /yr & Total # = 0.33*		
	# / batteries / yr = 10,867		
	pounds / battery = 40		
	Recycling Rate & TONS=	***93%***	***202.1***
Fluorescent Tubes	*no. / cap /yr & Total # = 2.4*		
	IF Actual # Collected= 6,000		***0.0***
Tires	*no. / cap /yr & Total # = 1*		
	# per tire = 20		*(rate excludes incineration)*
	Recycling Rate & TONS=	***20%***	***65.9***
Oil filters	*# / cap /yr & total # = 1.78*	58,617	
	Oil filters/lbs = 1		
	Recycling Rate & TONS=	***36%***	***10.6***
Used Oil	*gal / cap /yr & Total gal= 4.0*	131,724	
	Used oil Lbs/gal = 8		
	Recycling Rate & TONS=	***5.0%***	***26.3***
			581.5

MSW Imported to Resource Recovery Facility located within Becker Co. from Other Counties

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
--	-	-	-	-	-	-	-	-	-	-	-	-
--												
--												
--												
--												
	-	-	-	-	-	-					-	
	-	-	-	-	-	-	-	-	-	-	-	-
Total Imported MSW Tipped at Co RR Fac - tons	-	-	-	-	-	-	-	-	-	-	-	
Mechanical or Hand Materials Recycling at RR	-	-	-	-	-	-	-	-	-	-	-	
Imported MSW Non-Processable MSW & Bypass MSW - %												
Non-Processable MSW & Bypass MSW - tons	-	-	-	-	-	-	-	-	-	-	-	
Total Imported MSW to WTE Combustor - tons	-	-	-	-	-	-	-	-	-	-	-	
Total MSW Tipped at Co RR Fac - All Co's - tons	-	-	6,000	13,000	13,500	14,000	13,915	13,830	13,746	13,661	13,576	
Total ALL MSW into WTE Combustor - tons	-	-	4,800	10,400	10,800	11,200	11,132	11,064	10,996	10,929	10,861	

LANDFILL Destinations for County MSW

LANDFILL COMPACTED IN-PLACE ASSUMPTIONS for landfills located within Becker County

Cover Material % use - *Intermediate & final*	10%	
MSW In-Place Density Assumption =	1,300	lbs/cubic yard
Industrial In-Place Waste Density Assumption=	1,200	lbs/cubic yard in-place

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Ten Yr Total
County MSW tons Available for Landfill Disposal	*18,458*	*15,894*	*9,343*	*1,520*	*124*	*(1,242)*	*(1,238)*	*(1,239)*	*(1,240)*	*(1,257)*	*(1,233)*	
Minnesota Landfills												
	0	0	0	0	0	0	-	-	-	-	0	-
(includes RR fac, non-processable & bypass MSW)												
THAT County Landfill	0	0	0	0	0	0	-	-	-	-	0	-
Another #3 LF	0	0	0	0	0	0	-	-	-	-	0	-
Another #2 LF	0	0	0	0	0	0	-	-	-	-	0	-
Out-of-State Landfills												
Fargo, ND	16,377	16,400	10,400	3,260	3,260	3,260	3,288	3,316	3,344	3,372	3,400	53,300
Gwinner ND	2,081	2,100	2,100	2,100	2,100	2,100	2,080	2,060	2,040	2,020	2,000	20,700
--	0	0	0	0	0	0	-	-	-	-	0	-
"CHECK TONS to LF" -this # must match LF tons AVAILABLE	*18,458*	*18,500*	*12,500*	*5,360*	*5,360*	*5,360*	*5,368*	*5,376*	*5,384*	*5,392*	*5,400*	**74,000**

Abbreviation for primary landfill in county =

note:the totals in columns H to K will vary slightly from the MSW tons Available values above

MSW Imported to a Landfill located within Becker Co. from Other Counties

--	-	-	-	-	-	-	-	-	-	-	-	-
--							-	-	-	-		-
--							-	-	-	-		-
--	-	-	-	-	-	-	-	-	-	-	-	-
--	-	-	-	-	-	-	-	-	-	-	-	-
--	-	-	-	-	-	-	-	-	-	-	-	-
Total MN MSW Imported to the Co. Landfill	-	-	-	-	-	-	-	-	-	-	-	-
Out-of-State MSW Imported to LF in the County												-
Other State MSW	-	-	-	-	-	-	-	-	-	-	-	-
ALL MSW Imported to the LF in the Co.	-	-	-	-	-	-	-	-	-	-	-	-
Remaining MPCA Permitted Capacity - cy	-	cubic yards										-

WTE Residue & Ash Disposal in Ash Cells at P/D Ash Landfill - tons

Percent WET WTE Ash to Disposal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**	
WTE Ash Disposal Tons to Ash Cells in County	-	-	-	-	-	-	-	-	-	-	-	-
Resource Recovery Facility Reject Residue (non-MSW)	-	-	960	2,080	2,160	2,240	2,226	2,213	2,199	2,186	2,172	18,436
Total WTE ASH & WTE Procdessing residue -tons	-	-	960	2,080	2,160	2,240	2,226	2,213	2,199	2,186	2,172	18,436
Total All Solid Waste to Landfills	18,458	15,894	10,303	3,600	2,284	998	988	974	959	929	939	37,868

Construction / Demolition Waste Landfills within the Co.

Demolition Landfills

Note: typically C&D received at the gate will weigh approximately 460 pounds per cubic yard

Becker County C&D Landfill -- cy received	22,000	22,000	22,300	22,600	22,900	23,400	23,720	24,040	24,360	24,680	**25,000**	
Hough Owned C&D LF -- cy received	7,900	8,000	8,100	8,200	8,300	8,400	8,520	8,640	8,760	8,880	**9,000**	
ZZZ Private Company's C&D LF -- cy received	-	-	-	-	-	-	-	-	-	-	-	
Temporary One-Time-Use C&D disposal sites -- cy	-	-	-	-	-	-	-	-	-	-	-	
total cy to C&D disposal sites	29,900	30,000	30,400	30,800	31,200	31,800	32,240	32,680	33,120	33,560	34,000	319,800

Yard Waste - received at YW sites in County

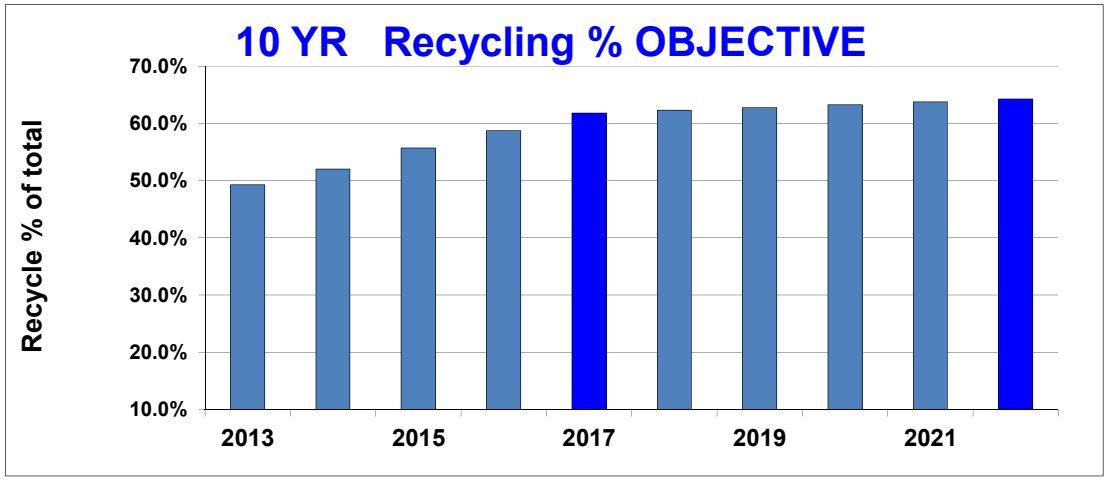
Note: Yard Waste cubic yard / tonnages are not included as part of the county MSW generation tonnage total

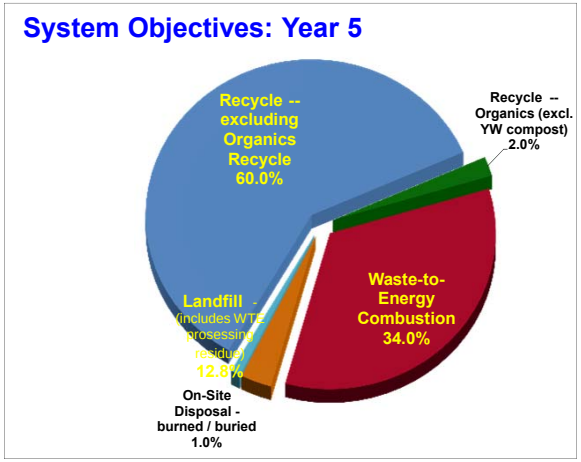
Yard Waste - received at YW sites in Becker Co. - Cubic Yards	9,000	9,100	9,200	9,300	9,400	9,500	9,600	9,700	9,800	9,900	**10,000**	95,500

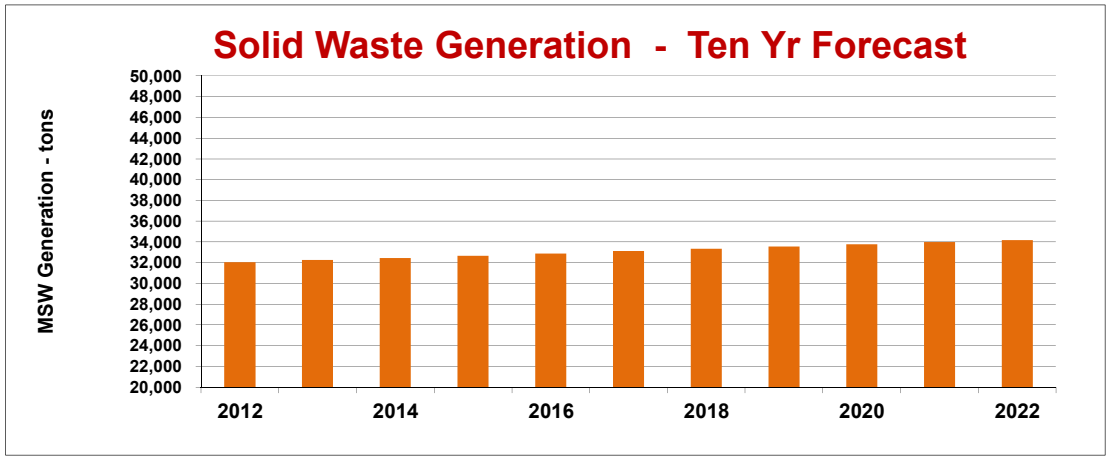
SUMMARY Waste Management System OBJECTIVES

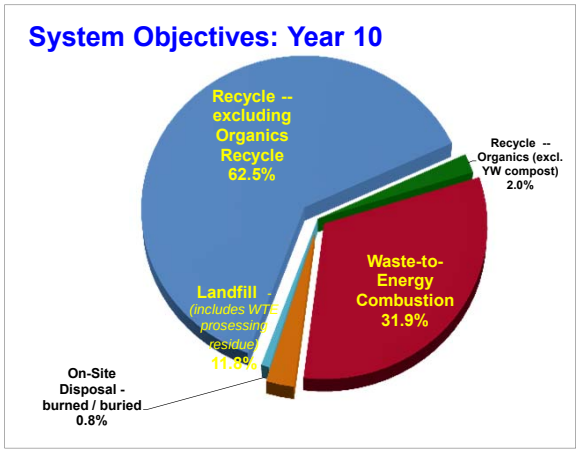
for the Becker County Solid Waste Management Plan

Planning Year #	2012	2013 Planning Yr 1	2014 Planning Yr 2	2015 Planning Yr 3	2017 Planning Yr 5	2022 Planning Yr 10
MANAGEMENT METHOD OBJECTIVES for the County MSW Solid Waste Management System						
Source Reduction						
Recycle -- *excluding Organics Recycle*	40.8%	48.8%	51.5%	54.7%	59.8%	62.3%
Recycle -- Organics *(excl. YW compost)*	0.46%	0.50%	0.50%	1.00%	2.00%	2.00%
Waste-to-Energy Combustion	0.0%	0.0%	14.8%	31.8%	33.8%	31.8%
Landfill *-(includes WTE prosessing residue)*	57.6%	49.3%	31.7%	11.0%	3.0%	2.7%
On-Site Disposal - *burned / buried*	1.1%	1.1%	1.1%	1.1%	1.0%	0.8%









SUMMARY DATA - Waste Management SYSTEM OBJECTIVES for the Becker County Solid Waste Management Plan

	2012	2013	2014	2015	2017	2022	10Yr Totals	
Planning Year #		*Planning Yr 1*	*Planning Yr 2*	*Planning Yr 3*	*Planning Yr 5*	*Planning Yr 10*		
SYSTEM OBJECTIVES								
Recycle -- *excluding yard waste*	41.3%	**49.3%**	**52.0%**	**55.7%**	**61.8%**	**64.3%**		
Resource Recovery	0.0%	**0.0%**	**14.8%**	**31.8%**	**33.8%**	**31.8%**		
Landfill	57.6%	**49.3%**	**28.8%**	**4.7%**	**-3.8%**	**-3.6%**		
On-Site Disposal - burned / buried	1.1%	**1.1%**	**1.1%**	**1.1%**	**1.0%**	**0.8%**		
Recycling % Detail								
Residential recycling %	8.6%	19.2%	20.2%	21.5%	24.0%	25.0%		
Commercial recycling %	17.6%	15.1%	16.2%	17.3%	20.0%	22.0%		
Organics Recycling (source separated food to people &livestock)	0.5%	0.5%	0.5%	1.0%	2.0%	2.0%		
Mechanical /Hand Sorted @ Res Rec Fac.	0.0%	0.0%	0.7%	1.6%	1.7%	1.6%		
Banned Problem Materials + Other recycle	14.6%	14.5%	14.4%	14.3%	14.1%	13.7%		
Percent of Total MSW	41.3%	**49.3%**	**52.0%**	**55.7%**	**61.8%**	**64.3%**		
							10Yr Totals	
Total MSW Generated	***32,000***	***32,000***	***32,000***	***33,000***	***33,000***	***34,000***	***332,000***	
On-Site Disposal - bury, burn barrel, open burn -- tons	400	**400**	**400**	**400**	**300**	**300**	**3,311**	
Recycling - tons								
Residential	2,800	6,200	6,600	7,100	8,000	8,600	77,400	tons
Commercial/ Industrial/ Institutional - *documented*	5,630	4,900	5,300	5,700	6,700	7,600	64,900	tons
Organics Recycle *(s. separated commercial & residential)*	150	200	**200**	300	700	700	5,200	tons
Mechanical / Hand Sorted @ Res Rec Fac.	-	-	200	500	600	500	4,600	tons
Problem Materials - *Banned + Other recycle*	4,680	4,700	4,700	4,700	4,700	4,700	46,800	tons
RECYCLING total tons	13,200	**16,000**	**17,000**	**18,300**	**20,600**	**22,100**	**198,800**	tons
Resource Recovery -tons tipped								
Perham Resource Recovery Facility WTE Facility - tons tipped	-	-	6,000	13,000	14,000	13,576	**115,000**	tons
--	-	-	-	-	-	-	**-**	tons
Total RR Facilities MSW Tipped	-	**-**	**6,000**	**13,000**	**14,000**	**13,576**	**115,000**	tons
MSW from other Co's sent to a County Res. Rec. Facility								
	-	-	-	-	-	-	-	tons
	-	-	-	-	-	-	-	tons
	-	-	-	-	-	-	-	tons
	-	-	-	-	-	-	-	tons
	-	-	-	-	-	-	-	tons
	-	-	-	-	-	-	-	tons
	-	**-**	**-**	**-**	**-**	**-**	**-**	
TOTAL RECEIVED AT RR FACILITY in Co. -- tons	**-**	**-**	**6,000**	**13,000**	**14,000**	**13,576**	**115,228**	
Landfill - MSW from within the County to LF - tons	18,500	**18,500**	**12,500**	**5,400**	**5,400**	**5,400**	**74,000**	tons
LANDFILL DISPOSAL DISTINATIONS for Becker Co's MSW								
	-	-	-	-	-	-	-	tons
THAT County Landfill	-	-	-	-	-	-	-	tons
Another #3 LF	-	-	-	-	-	-	-	tons
Another #2 LF	-	-	-	-	-	-	-	tons
Out-of-State Landfills								
Fargo, ND	16,400	16,400	10,400	3,300	3,300	3,400	**53,000**	tons
Gwinner ND	2,100	2,100	2,100	2,100	2,100	2,000	**20,700**	tons
--	-	-	-	-	-	-	**-**	tons
Total All Co's MSW to ALL LF's - tons	18,500	18,500	12,500	5,400	5,400	5,400	**74,000**	tons
LF Capacity USED + Cover - for ALL Co MSW -cy	28,400	28,500	20,700	11,400	11,700	**11,600**	**142,200**	*cu yds*
LANDFILL DISPOSAL of Solid Waste at landfills located WITHIN the COUNTY								
MSW GENERATION to LF	-	-	-	-	-	-	-	tons
All MSW Imported to LF in the Co. - *tons*	-	-	-	-	-	-	-	tons
TOTAL MSW to - tons	-	-	-	-	-	-	**-**	tons
Industrial & non-MSW Waste to MSW LF's in the Co. - *tons*	-	-	1,000	2,100	2,200	2,200	**18,400**	tons
Total Solid Waste to LF within Co. - tons	-	**-**	**1,000**	**2,100**	**2,200**	**2,200**	**18,400**	tons
LF Capacity USED + cover for ALL Wastes -cu yds	-	**-**	**1,800**	**3,800**	**4,100**	**4,000**	**30,700**	**cu yds**
Demolition Debris - received at C&D sites in Co - cy								
C&D Waste - received at C&D sites in Co. - Cu Yds	29900	30000	30400	30800	31800	34000	**319,800**	cu yds
Yard Waste - received at YW sites in County								
Yard Waste - received at YW sites in Co. - Cu Yds	9000	9100	9200	9300	9500	10000	**95,500**	cu yds

SOLID WASTE COMPOSITION STUDY

RESULTS

PERHAM RESOURCE RECOVERY FACILITY

JANUARY 19, 2012

2850 100TH COURT NE
BLAINE, MN 55449
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www.stericycle.com

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January 19, 2012

Mr. Brian Schmidt
Perham Resource Recovery Facility
201 6th Avenue NE
Perham, MN 56573

Re: 2011 Solid Waste Composition Study Results

Dear Mr. Schmidt:

This report summarizes the results from the Solid Waste Composition Study (Study) performed by your facility during the month of December, 2011. Pursuant to the MPCA letter dated December 12, 2011, the waste fractions have been identified using the specified MPCA nomenclature, to the extent practical.

For each of the 40 samples collected, results were tabulated and averaged to determine the overall percentages of the fractions separated from the waste streams. The field data sheets from the Study are included in Appendix D. Tabulated results are included in Appendix A. Results are summarized as follows for the combustible and non-combustible waste fraction groupings in Table 1:

Table 1: Weight Fractions of each Fraction Grouping Present in MSW

Total Combustibles

Item	Lbs	wt%
Paper	1,494.6	11.12%
Cardboard	2,394.3	17.81%
Plastic	2,664.2	19.82%
Organics	2,565.5	19.08%
Electronics	296.0	2.20%
Total	**9,414.6**	**70.03%**

Total Non-Combustibles

Item	Lbs	wt%
Various	**4,029.4**	**29.97%**

Total	**13,444.0**	**100.00%**

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Results for each of the individual fractions are presented below in Table 2:

Table 2: Weight Fractions of Each Individual Fraction Present in MSW

Fraction	Samples	Top Fines	Bottom Fines	Non-Separables	Total (Lbs)	Wt%
Paper – Newsprint (ONP)	582.0				582.0	4.3%
Paper – Mixed	773.0	136.0	3.6	0.0	912.6	6.8%
Cardboard – Corrugated (OCC)	997.0				997.0	7.4%
Cardboard – Boxboard	1,011.0	386.3	0.0	0.0	1,397.3	10.4%
Plastic – HDPE Bottles/Jars	622.0				622.0	4.6%
Plastic – PET Bottles/Jars	614.0				614.0	4.6%
Plastic – PVC	193.0				193.0	1.4%
Plastic – Other	916.0	262.6	56.6	0.0	1,235.2	9.2%
Organics – Yard Waste	155.0				155.0	1.2%
Organics – Other	1,373.0	381.0	656.5	0.0	2,410.5	17.9%
Electronics / Small Appliances	296.0				296.0	2.2%
Metal – Ferrous	570.0	22.0	0.0	0.0	592.0	4.4%
Metal – Aluminum Beverage Cans	578.0				578.0	4.3%
Metal – Other Non-Ferrous	358.0	34.0	7.0	0.0	399.0	3.0%
Glass	725.0	262.6	205.3	0.0	1,192.9	8.9%
Inorganic Materials	1,115.0	60.5	22.0	0.0	1,197.5	8.9%
HHW – Mercury Containing Devices	18.0	0.0	0.0	0.0	18.0	0.1%
HHW – Other	52.0				52.0	0.4%
Total	**10,948.0**	**1,545.0**	**951.0**	**0.0**	**13,444.0**	**100.0%**

Samples were submitted to MVTL Laboratories for analysis to determine proximate analysis, heating value, and ultimate analysis of the combustible fractions. MVTL homogenized and split samples pursuant to the Solid Waste Composition Study procedures. Four individual samples were analyzed. Analytical results are included in Appendix B.

A Summary of the proximate analysis, ultimate analysis, and heating value analytical results are presented below in Tables 3, 4, and 5, respectively. Calculations are included in Appendix C.

Table 3: Proximate Analysis (Combustible Fractions Only)

Analyte	Units	Sample 1	Sample 2	Sample 3	Sample 4	Average
Total Moisture	wt%	26.45%	26.44%	26.26%	26.19%	**26.34%**
Ash	wt%	4.31%	4.52%	4.34%	4.41%	**4.40%**
Volatile Matter	wt%	59.64%	59.81%	59.20%	60.12%	**59.69%**
Total Sulfur	wt%	0.07%	0.08%	0.07%	0.07%	**0.07%**
Fixed Carbon (By Difference)	wt%	9.53%	9.15%	10.13%	9.21%	**9.51%**
Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Table 4: Ultimate Analysis (Combustible Fractions Only)

Analyte	Units	Sample 1	Sample 2	Sample 3	Sample 4	Average
Total Moisture	wt%	26.45%	26.44%	26.26%	26.19%	**26.34%**
Ash	wt%	4.31%	4.52%	4.34%	4.41%	**4.40%**
Carbon	wt%	38.55%	38.50%	38.73%	39.37%	**38.79%**
Hydrogen	wt%	7.73%	7.56%	7.66%	7.80%	**7.69%**
Nitrogen	wt%	0.41%	0.36%	0.41%	0.49%	**0.42%**
Total Sulfur	wt%	0.07%	0.08%	0.07%	0.07%	**0.07%**
Chlorine	wt%	0.17%	0.15%	0.17%	0.12%	**0.15%**
Oxygen (By Difference)	wt%	48.76%	48.83%	48.62%	47.74%	**48.49%**
Total		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Table 5: Heating Value (Combustible Fractions Only)

Analyte	Units	Sample 1	Sample 2	Sample 3	Sample 4	Average
Heating Value	Btu/lb.	**6,296**	**6,370**	**6,187**	**6,160**	**6,253**

The above results were numerically adjusted to take into account the non-combustible fraction of waste to represent the proximate analysis, ultimate analysis, and heating value of MSW as incinerated. These results are presented below in Tables 6, 7, and 8, respectively:

Table 6: Proximate Analysis (As Incinerated)

Analyte	Result as Incinerated
Total Moisture	**18.44%**
Ash	**3.08%**
Volatile Matter	**41.80%**
Total Sulfur	**0.05%**
Fixed Carbon (By Difference)	**6.66%**
Non-Combustibles	**29.97%**
Total	**100.00%**

Table 7: Ultimate Analysis (As Incinerated)

Analyte	Result as Incinerated
Total Moisture	**18.44%**
Ash	**2.27%**
Carbon	**20.01%**
Hydrogen	**3.97%**
Nitrogen	**0.22%**
Total Sulfur	**0.04%**
Chlorine	**0.08%**
Oxygen (By Difference)	**25.01%**
Non-Combustibles	**29.97%**
Total	**100.00%**

Table 8: Heating Value (As Incinerated)

Analyte	Units	
Heating Value	Btu/lb.	**4,379**

If you have any questions or comments regarding this report, or if you require any additional information, please feel free to contact us at (612) 285-9865.

Sincerely,
Stericycle, Inc.

David W. Estensen
Compliance & Regulatory Affairs Manager

cc: Carolina Espejel-Schutt, MPCA
Lisa Mojsiej, MPCA