EXECUTIVE SUMMARY

JOHNSON COUNTY SOLID WASTE MANAGEMENT PLAN

BACKGROUND

In Kansas, counties are responsible for solid waste planning. In Johnson County, solid waste planning takes place through the Johnson County Solid Waste Management Committee (SWMC) which develops a solid waste management plan (SWMP). The Board of County Commissioners (BOCC) formally adopts the SWMP after a required public hearing.

Johnson County is currently operating under a 20-year plan developed in 1996 and revised in 2001. As required by Kansas law, the SWMC and the BOCC review the plan annually.

The SWMP is required to provide for storage, collection, transportation, processing, and disposal of all solid waste generated in the county. The plan must also include waste reduction measures such as recycling and composting. It is the County's responsibility to ensure that adequate and affordable disposal capacity is available to all county residents and businesses. This new plan is intended to fulfill these obligations and to establish a road map for the future of solid waste management in Johnson County through 2027.

DRIVING FORCE FOR A NEW PLAN

The Johnson County Landfill, Inc., privately owned and operated by Deffenbaugh Industries, is the largest landfill in the state of Kansas and the Kansas City metropolitan area. It receives most of Johnson County's municipal solid waste (MSW) and a large portion of the MSW from surrounding counties. It is the only landfill in Johnson County licensed to accept MSW. The landfill has provided many years of available and affordable waste disposal services to most of Johnson County.

The principal driving force behind the recommendations in this new solid waste management plan is that the Johnson County Landfill, Inc. will close no later than 2027 and at current disposal rates, may close sooner. The Johnson County Landfill, Inc. began construction of the site's final permitted disposal area in 2007. The City of Shawnee has stipulated that the landfill can no longer accept solid waste after 2027.

To address this challenge, the new plan is deliberately strategic and action oriented. To meet the challenge, the County must focus on two major issues starting immediately in 2008 and continuing throughout the 20-year time horizon covered by the plan.

First, early waste reduction efforts are needed to divert more waste from disposal. These efforts may ensure that the Johnson County Landfill, Inc. remains open until 2027 and will reduce the amount of alternative disposal capacity needed once the landfill is closed,

Attachment A

making future disposal costs more affordable. Waste reduction also conserves natural resources and leads to the development of new business opportunities to reuse and recycle wastes. Currently, it typically costs less to recycle materials in Johnson County than to landfill the same materials, and future costs for landfilling once the Johnson County Landfill, Inc. closes is expected to rise relative to recycling costs. Finally, Johnson County is a recognized leader on environmental issues and desires to enhance this leadership in the solid waste arena.

The population of Johnson County is growing at about 10,000 persons per year while waste reduction through recycling and composting in Johnson County is significantly below the national average. Thus, the amount of solid waste destined for disposal is growing faster than desired, and valuable resources are not being recovered in adequate quantities. It is important for all these reasons to achieve a county recycling rate that exceeds the national average.

Second, the County needs to further evaluate alternative waste disposal options in the earliest years of this plan to ensure that adequate and affordable disposal capacity is available when the Johnson County Landfill closes. It can take 10 to 15 years to site a new landfill, and no new or expanded landfills are planned in the eight-county Kansas City region. Given land costs and continued urbanization, it is unlikely that a new landfill will be sited in Johnson County. An existing landfill in Jefferson County, Kansas may be a future disposal option, but detailed analyses must be completed to determine whether this option would be economical or feasible. In addition, this option would likely require siting one or more new waste transfer stations in the county, which also necessitates substantial lead-time.

This new solid waste management plan lays out recommendations and strategies to address both of these related issues over the next five years – rapidly declining landfill capacity and lower than desirable waste diversion rates.

THE CURRENT SOLID WASTE MANAGEMENT SYSTEM

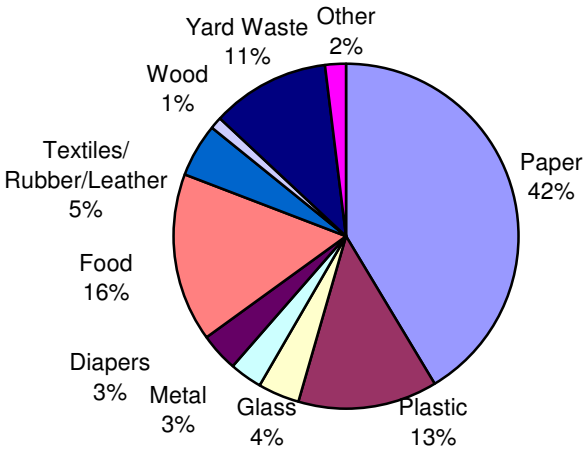
As in the past, the current solid waste management system serving Johnson County is primarily private sector driven. Only the city of Olathe, one of 19 incorporated cities in the county, directly manages its own residential solid waste.

Significant changes in the solid waste management field affecting Johnson County have occurred over the last 20 years. About 96 percent of the population residing in single-family households in the cities now has access to curbside recycling. All county residents have some access to drop-off recycling centers. Commercial recycling options have expanded. A large materials recovery facility that processes recyclable materials collected from Johnson County (and other locations) has also been sited and continues to operate in Wyandotte County.

While nine cities contract for residential waste collection and/or curbside recycling, these cities account for a minority of the county's population. Most county residents contract

for these services either individually or through homeowner associations. Consequently, residential waste collection costs vary widely across the county and significant quantities of recyclable materials are being landfilled. A waste sort conducted at the Johnson County Landfill, Inc. in 2006 and 2007 determined that the top four materials being disposed include paper, plastics, food and yard waste. A large proportion of these materials are potentially recyclable. The solid waste composition developed from the waste sort is shown in Figure ES-1.

Figure ES-1. Composition of Disposed Johnson County Solid Waste



SOLID WASTE MANAGEMENT PLAN DEVELOPMENT PROCESS

All 15 SWMC members brought significant interest, expertise, time and commitment to the preparation of a new solid waste management plan for Johnson County. However, early in the process of developing the new plan, both the BOCC and the SWMC deliberately sought expanded community input through the formation of an Ad Hoc Solid Waste Stakeholders Group, composed of about 40 representatives from cities, homeowners associations, public interest groups, federal, state and regional solid waste agencies, and the solid waste industry. This Group met three times during the spring of 2007, and provided invaluable feedback that guided the preparation of the plan. In addition, input from the BOCC and the Johnson County Council of Mayors was solicited at key points during plan development. Finally, a public hearing on the plan was held on November 7, 2007. The SWMC has considered comments received during all phases of preparing the plan. As a result, the plan represents a broad consensus across many sectors of the community regarding how best to address the solid waste challenges facing Johnson County over the next 20 years.

KEY THEMES IN THE NEW PLAN

While the time horizon for the new plan is 20 years, the next five years are critical to success in achieving the plan's recommendations. General plan themes include:

1. Ensuring adequate and affordable disposal capacity for county waste depends on success in reducing waste requiring disposal. Therefore, more aggressive waste reduction efforts are needed.
2. More consistency in the scope and cost of solid waste services across the county is desirable.
3. Close collaboration among the County, cities, businesses, homeowners associations and the solid waste industry is essential to success.
4. Complexity and urgency call for a stronger County role.
5. Imposing some public control over waste flow may be necessary to ensure adequate and affordable disposal capacity in the future.
6. Coordination with nearby county and regional partners may expand solutions and reduce costs to the county, and should be further investigated.
7. Landfilling is probably the most affordable future disposal option – but other emerging technologies should be followed and considered.
8. A new transfer station(s) is likely needed somewhere in the county due to the distance to haul to other landfill(s).
9. Johnson County is an unlikely site for a new landfill.

KEY RECOMMENDATIONS IN THE NEW PLAN

The plan recommends the following to achieve *solid waste reduction* in Johnson County:

1. The County should strive to increase solid waste reduction through aggressive countywide education, promotion, and implementation of cost effective source reduction, recycling, and composting measures. Results, based on a per capita disposal rate, should be measured and reported annually. Educational, promotional, and implementation efforts should target a municipal solid waste (MSW) recovery rate that, at a minimum, exceeds the national average, which was 32 percent in 2005.
2. The County should work with the cities, homeowners associations, and the private sector to increase residential participation in source reduction, curbside and drop-off recyclable materials collection, and composting of yard waste. The County should work with the cities, homeowners associations, and the private sector towards countywide consistency in residential waste reduction service levels including materials collected for recycling and recycling fees charged. In order to effectively mitigate the need for and cost of providing future disposal capacity, the County should assume a more centralized role in implementing waste reduction efforts, in close coordination and consultation with the cities, homeowners associations and the private sector.
3. The County should promote expansion of the existing commercial recycling infrastructure through education and awareness. The County should also investigate methods to expand commercial recycling to small

sized companies currently not served by the existing system. Finally, the County should encourage the private sector to provide more convenient recycling opportunities for multi-family residential buildings, particularly apartment complexes.

4. The County should investigate methods for increasing reuse and reducing the generation of construction and demolition (C&D) waste materials, and implement those methods that are shown to be most practical and promising. The County should monitor other non-MSW waste streams to identify potential areas where waste reduction can be achieved.

The plan recommends the following to provide for *adequate and affordable capacity* for solid waste generated for disposal in Johnson County.

The County should reduce the amount of solid waste requiring disposal by implementing waste reduction measures. The County should enter into discussions with local and regional waste haulers, processors, and disposal facility operators to better understand the private sector needs and any future private sector plans to provide additional disposal capacity. The County should evaluate the costs and benefits of meeting the County's future disposal needs by exerting more control over waste flow both within and through Johnson County. The County should investigate whether Johnson County's future disposal needs would be best served through development of regional solutions.

The plan recommends the following *County role and County operations* to achieve solid waste reduction in Johnson County.

The County should assume a leadership role for solid waste reduction in the county by acting as a coordinator, consensus builder, and educator through interaction with the cities and homeowners associations. The County should work with representatives of the existing solid waste management infrastructure to expand solid waste reduction opportunities. The County should lead by example by reviewing County operations to identify and implement waste reduction opportunities. The County should coordinate with other nearby county and regional partners in evaluating and implementing waste reduction strategies. As necessary to ensure adequate and affordable disposal capacity for waste generated in the county, the County should assume a more centralized role in implementing waste reduction efforts, in close coordination and consultation with the cities, homeowners associations and the private sector, and should restrict the disposal of specific wastes at facilities located in the county when recycling or reuse alternatives are widely available.

KEY STRATEGIES FOR IMPLEMENTING PLAN RECOMMENDATIONS

The plan lays out an implementation schedule for specific strategies needed to make progress towards the recommendations. Action on both fronts – *waste reduction* and *waste disposal* – are essential during the next five years, but some strategies will take longer to implement and others are staged later in the 20 year plan horizon to further evaluate their necessity and feasibility.

Key *solid waste reduction* strategies include:

1. Strive toward a county recycling rate that exceeds the national average (ongoing)
2. Increase curbside recycling services, participation and quantities of materials collected (ongoing)
3. Increase recycling in commercial and multi-family residential sectors (ongoing)
4. Eliminate disposal of yard waste in landfill (by 2011)
    a. Establish widely available disposal alternatives (composting, mulching mowers, curb-side segregation and pickup)
    b. Implement a countywide ban on yard waste going to the landfill once alternatives are in place
5. Work towards implementing a countywide volume-based waste collection rate structure (i.e., pay-as-you-throw) (by 2013-2017)
6. Promote better education about waste reduction (ongoing)
7. Implement countywide recycling of residential electronic waste (by 2008); and evaluate ways to expand household hazardous waste collection opportunities for Johnson County residents (by 2009)
8. Promote reuse and reduction of construction and demolition waste (ongoing)
9. Lead by example by eliminating waste for disposal within County Government operations (ongoing)

The plan recognizes that additional investigation and analysis of waste disposal options must occur over the next five years prior to identifying the specific option(s) that represents the best disposal future for the county. Key *solid waste disposal* strategies in the plan include:

1. Discuss Johnson County's disposal needs with landfill owners and operators, and determine private sector plans for any new waste disposal or processing facilities (by 2010)
2. Investigate and evaluate methods of establishing more public control over wastes generated in the county in order to provide for more affordable and adequate disposal capacity (by 2012)
3. Explore whether multi-jurisdictional agreements may provide benefits to Johnson County (ongoing)

4. Sponsor feasibility studies on processing and disposal options such as composting facilities and transfer stations (ongoing)

IMPACTS OF IMPLEMENTING RECOMMENDATIONS AND STRATEGIES

Solid Waste Generation, Recovery, and Disposal in Johnson County, 2005

To assess the projected impacts of implementing the new plan, it is necessary to determine current rates of solid waste generation, recovery and disposal for Johnson County. Several categories of solid waste are generated in the county (generation is defined as disposal plus recovery): municipal solid waste (MSW), construction and demolition debris (C&D), and "other" wastes such as non-hazardous industrial process waste and wastewater treatment plant biosolids. Figure ES-2 and Table ES-1 show how generation of these wastes compare for 2005.

Figure ES-2. Generation of Solid Waste in Johnson County, 2005

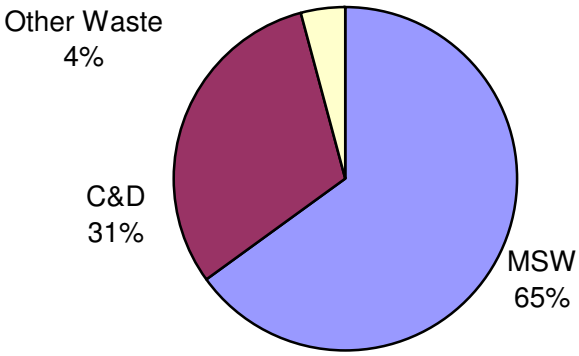


Table ES-2 provides additional detail on MSW generation, recovery, and disposal for 2005. As shown, residential waste recovery through recycling and yard waste composting is 15.2 percent of residential generation, while commercial waste recovery is 30.4 percent of commercial generation. For the combined residential and commercial sectors, the county's MSW recovery (recycling) rate is 22.6 percent.[1] This compares to a national recycling rate average of 32 percent for 2005.

For 2005, residential waste generation is 3.15 pounds per person per day, of which 0.48 pounds per person per day is recovered (recycled) and 2.67 pounds per person per day is disposed. The commercial sector generates 2.96 pounds of waste per person per day, of which 0.90 pounds per person per day is recovered (recycled) and 2.06 pounds per person per day is disposed.

[1] There is only limited recovery of C&D and other wastes.

Table ES-1
Generation of Solid Waste in Johnson County, 2005
(In tons and pounds per person per day)

Solid Waste Category	Quantity (tons)	Percent of Total	Pounds per Person per Day (1)
MSW (2)	565,473	65.0	6.12
C&D	267,178	30.7	2.89
Other Waste	37,243	4.3	0.40
Total	869,894	100.0	9.41

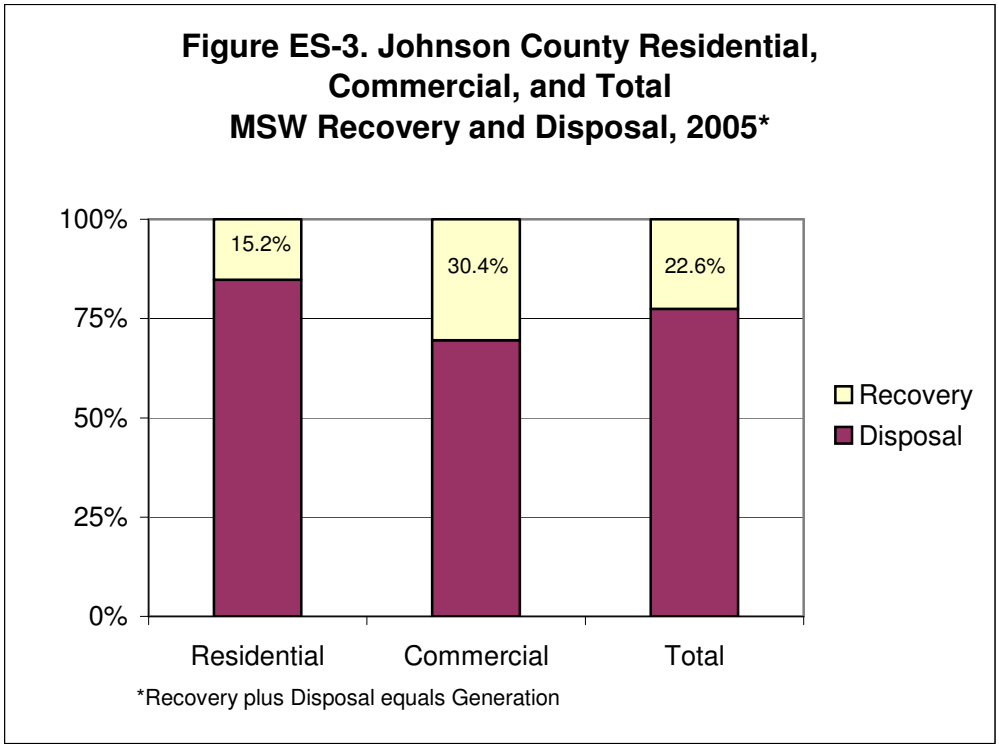
(1) Calculated at 365 days per year and a population of 506,562.
(2) Of this amount, 127,735 tons were recovered through recycling and composting.
Sources: Tables 5-4, 5-7, and 5-8.

Table ES-2
Johnson County Municipal Solid Waste (MSW) Generation, Recovery, and Disposal, 2005
(In tons and pounds per person per day)

	Residential		Commercial		Total	
MSW Category	(tons)	Pounds per Person per Day (1)	(tons)	Pounds per Person per Day (1)	(tons)	Pounds per Person per Day (1)
Generation	291,391	3.152	274,082	2.965	565,473	6.117
Recovery	44,288	0.479	83,447	0.903	127,735	1.382
Disposal (2)	247,103	2.673	190,635	2.062	437,738	4.735
Recovery %	15.2%		30.4%		22.6%	

(1) Calculated at 365 days per year and a population of 506,562.
(2) Disposal quantities classified as mixed loads in Table 5-2 (mixed residential and commercial) were distributed to the residential and commercial portions shown in Table E-2.
Sources: Tables 5-4, 5-3, and 5-2.

Table ES-2 and Figure ES-3 show that the recovery of commercial waste for recycling is nearly double residential waste recovery through recycling and composting. Commercial waste recovery for recycling is nearly all paper products such as corrugated containers, office paper and mixed paper.



Projected Municipal Solid Waste Generation, Recovery, and Disposal

In order to evaluate future solid waste management trends under different scenarios, generation, recovery, and disposal rates were projected to 2027. The baseline scenario shown in Table ES-3 and Figure ES-4 holds recovery and disposal rates constant at 2005 levels (22.6 percent and 77.4 percent, respectively). Baseline MSW amounts for 2005, 2017, and 2027 are presented in Table ES-3.

Table ES-3
MSW generation, Recovery, and Disposal
2005 Baseline Rates
(In tons by source and percentage change)

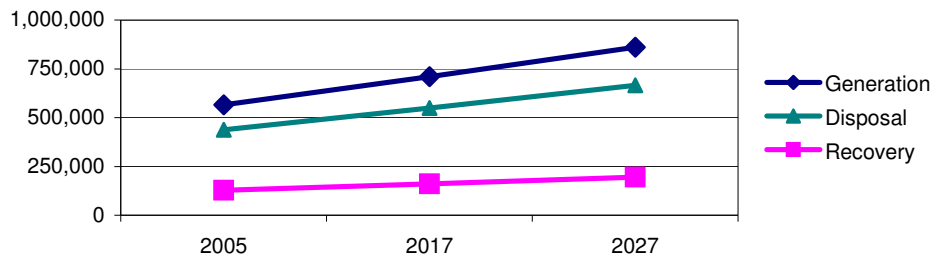
Category	2005	2017	2027	Percent Increase 2005 to 2027
Generation	565,473	710,170	860,810	52.2%
Recovery	127,735	160,420	194,450	52.2%
Disposal	437,738	549,750	666,360	52.2%
Disposal (pounds per person per day)	4.73	5.04	5.56	

Calculated at 365 days per year and a population of 506,562.
Source: Table 6-3.

Table ES-3 and Figure ES-4 demonstrate that because per capita MSW generation and disposal are projected to increase steadily, total county waste disposed will increase by 52.2 percent between 2005 and 2027 unless the recommendations and strategies in the plan are implemented. Two other waste recovery scenarios were developed to assess the impacts of implementing the plan, the more aggressive of which is shown in Table ES-4 and Figures ES-5 and ES-6.

The major waste reduction approaches associated with this aggressive scenario are: expansion of curbside collection of recyclables, implementation of a volume-based rate structure (i.e., pay-as-you-throw) for residential trash collection, separate curbside collection of yard waste for composting with subsequent landfill ban, and increasing commercial recycling by 35 percent over 2005 levels. These are key measures recommended in the plan.

Figure ES-4. MSW Generation, Recovery, and Disposal Projections (2005 baseline rates)



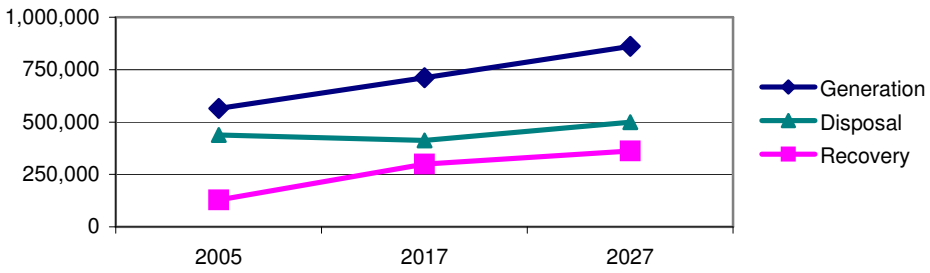
With future population growth and growth in per capita waste generation, the quantity of waste to be disposed will still increase between 2017 and 2027, even with aggressive waste diversion efforts. However, these efforts can also lead to a significant increase in recovery (recycling and composting), which is adequate to keep the per capita disposal rate lower in 2027 than in 2005. This shows that waste diversion is essential for reducing the amount of waste that must be disposed in future years. It also suggests that the ability of the County to provide affordable and adequate disposal capacity in the future is largely influenced by how successfully waste is reduced through the strategies in this plan.

Table ES-4
MSW Generation, Recovery, and Disposal
Aggressive Waste Diversion Scenario
(In tons by source and percentage change)

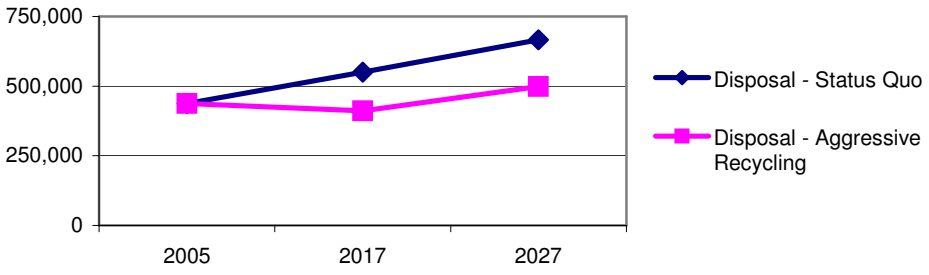
Category	2005	2017	2027	Percent Increase 2005 to 2027
Generation	565,473	710,710	860,810	52.2%
Recovery	127,735	298,490	361,800	183.2%
Disposal	437,738	411,680	499,010	14.0%
Disposal (pounds per person per day)	4.73	3.78	4.16	

Calculated at 365 days per year and a population of 506,562.
Source: Table 6-5.

Figure ES-5. MSW Generation, Recovery, and Disposal Projections (aggressive waste diversion scenario)



ES-6. Projected Impact of Aggressive Recycling and Composting on Quantity of Johnson County MSW Disposed



RESOURCES NEEDED TO IMPLEMENT THE NEW PLAN

Implementing the new plan within the timeframes necessary to adequately prepare the county for the future solid waste challenges will require the commitment of additional resources, starting in 2009 and continuing throughout the 20-year plan horizon. It is anticipated that an annual investment of about $340,000 will be needed which would cover the cost of two new full time County staff, educational and outreach materials, and consulting assistance. The County should begin immediately to consider and commit appropriate funding sources.