

2016 State Solid Waste Management Plan



Kansas Department of Health and Environment
Bureau of Waste Management

Adoption by Secretary

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State law [K.S.A. 65-3406(a)(5)] directs the secretary of the Department of Health and Environment to develop a statewide solid waste management plan. In accordance with this directive, the first state plan was prepared and adopted in 1996. The state plan has been updated approximately every five years. This 2016 plan is the fifth version of the state plan.

Many persons, private companies, and local governments contribute to the management of solid waste in Kansas including duties related to planning, consulting, collection, processing, monitoring, and disposal. Kansans generate over six million tons of solid waste per year including municipal solid waste, construction & demolition waste, and industrial waste. About one million tons of municipal solid waste (nearly one-third of generation) was diverted from landfill disposal and either recycled or composted. This is an excellent recycling rate given the fact that recycling is not mandated by state law.

This 2016 plan was developed to establish priorities for KDHE staff through 2020 and to encourage local planners to reassess various solid waste management decisions that they made over the past 20 years. This plan retains the fundamental philosophy consistent with all earlier plans and applicable state law that county officials working together with appointed citizens representing cities, businesses, and institutions are responsible for making decisions related to preferred solid waste management practices. KDHE will facilitate the local planning process by providing technical assistance and ensure that selected operational practices are carried out in a manner that is protective of public health and the environment and minimizes nuisances.

This plan recognizes that situations arise that may divert KDHE resources away from some planned initiatives or program improvements. For example, staff may spend much unplanned time providing assistance related to debris generated through major natural disasters. However, the essential aspects of this plan which will be carried out regardless of circumstances relate to performance of KDHE's core program functions established in state law.

Following a public notice of the draft plan and a period of review and comment, this plan is hereby adopted as a guide for KDHE staff efforts related to the administration of the solid waste program from 2016 to 2020.

Susan Mosier, MD
Secretary
Kansas Department of Health and Environment



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Section 1

Background and Purpose

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History

The first “Kansas Solid Waste Management Plan” was completed in February 1981. That plan was prepared to address certain new federal regulations, mostly related to open dumps and the projected trend toward the concept of “resource recovery” which aimed to maximize the recovery of valuable materials and energy from the municipal solid waste stream. That early plan preceded the development and adoption of many new state laws and regulations related to landfill standards and local government planning, and the development of new technologies and practices related to solid waste management in general.

A decade later in 1992, the Kansas Legislature adopted comprehensive new laws to address solid waste management practices including provisions regarding state and local permitting practices, enforcement, waste reduction, clean-up, grant funding to stimulate waste reduction, and a variety of regulations that the Kansas Department of Health and Environment (KDHE) was directed to develop and adopt. Another specific duty assigned to the secretary of KDHE was the adoption of a state solid waste management plan.

The first state solid waste management plan prepared in response to this new directive was adopted in December 1996. That plan was entitled “A Decision-Makers Tool for Kansas Officials and Private Service Providers.” The 1996 plan was based upon the concept that major decisions related to solid waste management in Kansas should be made at the local level. Information was provided that would be useful to local planners in each county, who according to new state law, were required to prepare their own solid waste management plan that addressed the disposal, transfer, processing, and recycling of all generated waste. Statewide mandates were avoided in the state plan because solid waste management needs, conditions, and resources varied widely across Kansas.

Three subsequent five-year updates to the plan were completed with the focus and emphasis of each summarized below:

Background and Purpose

- 2000 – presented a vision for the future of solid waste management in Kansas
- 2005 – new solid waste management goals were set based upon stakeholder feedback
- 2010 – presented a new vision for sustainable solid waste management programs in Kansas

Use of State Solid Waste Management Plans

Each of the four state solid waste management plans prepared over the past three decades contained information about the current status of waste management activities in Kansas and each plan established goals for KDHE and the state as a whole. The purpose of maintaining up-to-date plans is to provide general and specific guidance to KDHE and other parties directly involved in solid waste management operations throughout the state. Each plan identified needs, set goals, and made recommendations related to the use of limited state and local resources to make improvements in waste management practices and to sustain existing programs. Each version of the state plan also examined short-term and long-term needs. The goals and recommendations in each plan were clear and direct with respect to KDHE duties and responsibilities; however, encouragement and guidance would be a better description of what has generally been included for others more directly involved in local planning or providing solid waste management services.

Despite the good intentions behind the development of each version of the state plan and the fact that much potentially useful information was included in each plan, the practical benefits and outcomes over a 20 year period have been limited. The reasons for this result fall into three primary areas: (1) KDHE must operate within constraints established by state law, available financial and staff resources, and changing administrations; (2) local governments are required to develop their own solid waste plans (The state plan may be of little interest to local planners or service providers except with respect to its potential influence of KDHE’s development of new regulations or policies that affect operating facilities.); (3) state plans have generally been comprehensive and voluminous limiting practical use due to their lack of focus on a fewer number of feasible initiatives that address areas of greatest need. More explanation of each reason follows.

When KDHE developed earlier state plans, often with the help of interested stakeholders, many diverse agency initiatives were recommended assuming that they would be pursued; however, agency priorities often change. Areas of effort and improvement identified during plan preparation may be modified or replaced following plan adoption for many reasons. Some goals may be deferred by new legislative directives. Senior KDHE management may identify new concerns and policy initiatives. Significant areas of non-compliance may be discovered. New areas of technical assistance may be identified. Public health concerns or complaints may drive new initiatives. New federal regulations may be adopted. Natural disasters may reprioritized staff efforts for extended periods of time. And, staffing/resource challenges may limit KDHE capabilities. Overall, some or several issues that were considered important when each

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plan was developed have been reassessed, modified, forgotten, or moved to the “back burner” as new issues arise and dominate agency effort.

Local solid waste planners have generally not used the state plan when updating local county plans. First, most of the original county or regional plans were prepared before the 1996 state plan was prepared and made available. Since that time, plan modifications and five-year updates have typically involved only minor changes to the originally developed county plans. Second, in accordance with the statutory directive to delegate decision-making and planning to the local level, the state plan does not mandate the nature and scope of local solid waste practices. Counties can decide their preferred methods of waste management from various options with primary limitation being that solid waste must always be managed in accordance with protective standards related to facility design and operation. Overall, the state plan has had minimal influence on the local planning process. For this to change, significant changes in state policy regarding mandated practices would need to be established in state law. Such changes are not recommended.

Finally, even with respect to KDHE’s own duties and responsibilities, earlier versions of the state plan have yielded few practical outcomes perhaps because they have attempted to address too many needs and issues. Each plan listed numerous goals, objectives, strategies, challenges, schedules, etc. and complex illustrations of a comprehensive vision for a desired statewide solid waste management system. Overall, these plans have lacked focus and the most important priorities have not been adequately highlighted. Over the years, the daily challenges of administering the statutorily established programs and addressing other time-sensitive issues have dominated staff effort and the lack of focus on a smaller number feasible goals has resulted in some reluctance to use the plan as a basis for prioritizing work assignments.

In summary, the four previously adopted state plans have produced limited value to KDHE and other public and private entities with solid waste management responsibilities. Therefore, this 2016 update to the plan was developed with this historical outcome in mind. This plan focuses on KDHE responsibilities and recognizes that local decision-making should be retained regarding preferred management methods. Consequently, the 2016 plan is relatively brief and practical. It includes the following information:

- Section 2 - Limited relevant background information on waste management practices is included to portray current conditions beginning this next planning period.
- Section 3 - A limited number of feasible and practical KDHE goals based upon identified needs and available resources.
- Section 4 - A discussion of local government planning requirements and encouragement to county planners to reevaluate past solid waste management decisions and changing conditions that may warrant changes to previously selected management methods.
- Section 5 - Limited information on national issues and trends is included.

Background and Purpose

It is important to emphasize that this 2016 update to the Kansas Plan firmly maintains the earliest philosophy set forth in the 1996 plan retaining local authority to make the most basic decisions related to solid waste management. Choices regarding preferred solid waste management practices, including all approaches to waste reduction are to be made locally. While KDHE will use facility permitting and compliance inspections to ensure that all disposal, processing, and transportation practices are carried out in an environmentally sound and compliant manner, local governments through the statutorily established planning process will select which types of operations that most effectively meet their needs.

County and regional solid waste planners are encouraged to use newly developed plan review and update guidelines as discussed in Section 4. These guidelines will be made available online and through direct communications as plan review/update deadlines approach.

KDHE Interim Study on the “Adequacy of Waste Reduction Practices in Kansas”

As mentioned above, issues often arise which cause KDHE to address solid waste management questions and needs that were not contemplated when solid waste plans are developed so they are included in the plans. One example was legislation that was introduced and passed in 2013 directing KDHE to evaluate the adequacy of waste reduction practices in Kansas, specifically recycling and composting, and to prepare and submit a report to the Legislature on the need for new laws or regulations to improve those practices. This legislation and required study was primarily supported by proponents of a statewide ban on yard waste disposal in Municipal Solid Waste (MSW) landfills. KDHE was directed to study the current status of waste reduction practices (2013) and seek input from a wide base of interested stakeholders. A copy of the executive summary of that report is included as Appendix C of this plan.

This “Adequacy” study concluded that no new laws or regulations were needed to enhance waste reduction practices for the following reasons:

- Municipal solid waste disposal in Kansas was continuing to decrease per person and the recycling rate was continuing to increase (nearly one-third was recycled in 2012).
- Permitted landfill capacity in nearly all of Kansas was adequate to meet all disposal needs for about 40 years.
- Voluntary composting activity was significant without new legislation (165 permitted or registered central composting facilities).
- Landfill gas recovery and beneficial use was continuing to increase.
- Household hazardous waste collection existed in nearly all counties.
- Local government officials are generally supportive of waste reduction programs based upon citizen interests and recognition of long-term benefits.

Background and Purpose

Timing of the 2016 State Plan

KDHE's preparation of this solid waste plan update was delayed approximately one year due to another unforeseen solid waste issue that arose in 2014. The U.S. EPA adopted new federal regulations related to the management and disposal of coal combustion residuals (CCR). One aspect of these new regulations which significantly affect all coal-burning electrical utilities in Kansas was the need for KDHE to prepare a special solid waste plan that addressed the management of CCR and other solid waste issues. That plan took priority in 2015 and it was finalized and conditionally approved by EPA in October 2015. The CCR Plan was developed to satisfy the minimum requirements established by EPA. It is included as Appendix B to this comprehensive solid waste management plan and will be henceforth included in future revisions.

The 2016 Kansas Solid Waste Management Plan will be effective for only a four year period instead of five. The next revision to the plan will be carried out in 2020.

Section 2

Current Conditions in 2016

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All earlier versions of the state solid waste plan presented detailed information on the status of waste management in Kansas at the time the plans were prepared. The “Adequacy of Waste Reduction” report prepared for the Legislature in 2012 included similar information along with more detailed facts regarding waste reduction practices. This 2016 update to the solid waste plan was intentionally shortened and simplified. It still provides certain basic information on current conditions, but less detail than may have been presented in earlier plans and reports. The following information is included in this section:

- Tons of waste disposed over the past ten years, by waste type
- Trends in the per capita municipal solid waste (MSW) disposal rate and the statewide recycling rate
- A list of all active MSW landfills and their remaining permitted capacity
- A map showing regional MSW disposal practices (transfers to regional facilities)
- Maps of permitted waste reduction operations (composting and household hazardous waste collection) and non-permitted material recovery facilities (MRFs)
- Landfill gas collection and control systems
- A map of solid waste planning regions
- A general review of trends in MSW composition

This plan does not include an assessment of individual city and county recycling programs and available services which vary significantly across the state. An overview of current practices is addressed as other data and information is analyzed in this section, especially the general assessment of trends in waste composition. New opportunities to implement or expand waste reduction programs are influenced by waste composition.

The current conditions presented in this section have the greatest value with respect to KDHE’s role and the development of state policies and priorities. The information is of more limited value to counties or regional groups as they routinely update their local plans. However, local planners may find it beneficial to compare their practices or conditions to other locations in the state or to the state as a whole to assess whether changes or improvements to their local plans and practices are warranted.

Waste Disposal in Kansas

Table 2-1 shows the amounts of each type of solid waste landfilled in Kansas over the past ten years. Overall, there has been a slight downward trend in landfilling waste over this period. There was a significant “bump” in the disposal of industrial solid waste (mainly associated with some special projects at coal-fired power plants) in 2010 and 2011, but disposal has returned to more typical tonnage since 2013. About 55 percent of landfilled waste is MSW (2.8 million tons in 2015) and about 25 percent of that total is imported MSW, nearly all from Missouri. Construction & demolition (C&D) waste is consistently about 1.0 million tons landfilled per year, but this does vary based upon health of the economy, community redevelopment and renovation projects, and natural disasters. A minor decreasing trend in C&D disposal could accompany an increase in recycling which has begun in some areas. Industrial waste disposal occurs almost entirely in on-site landfills. Total industrial waste landfilling is about 800,000 tons per year, mostly in the form of coal combustion residuals. This amount may vary based upon how much of this waste is beneficially reused and it may decrease if less coal is burned to generate electricity. Special waste disposal is generally about 500,000 tons per year, mostly consisting of contaminated soil generated by various remediation projects.

Table 2-1 Solid Waste Landfilled by Waste Type

	Construction/ Demolition	Industrial	Municipal Solid Waste	Special Waste	Tires	Total
2006	1,218,214.48	1,020,827.42	3,404,032.16	501,650.49	72,204.63	6,216,929.18
2007	1,222,714.69	956,782.32	3,187,526.47	454,799.48	45,078.68	5,866,901.64
2008	1,070,618.71	1,142,156.97	3,039,671.21	684,462.05	47,457.61	5,984,366.55
2009	907,736.42	1,119,355.80	2,933,973.25	485,662.90	48,797.56	5,495,525.93
2010	991,347.50	1,701,673.82	2,924,189.71	854,371.47	55,921.91	6,527,504.41
2011	1,250,676.96	1,878,662.66	2,779,196.66	730,595.77	57,764.45	6,696,896.50
2012	1,112,210.13	1,258,484.22	2,719,213.76	607,057.27	51,340.01	5,748,305.39
2013	1,080,650.56	1,030,870.98	2,806,949.46	506,141.13	55,847.53	5,480,459.66
2014	1,147,120.95	955,662.83	2,813,140.58	491,953.46	52,602.52	5,460,480.34
2015	1,056,499.93	844,216.73	2,841,930.33	503,826.76	51,596.89	5,298,070.64

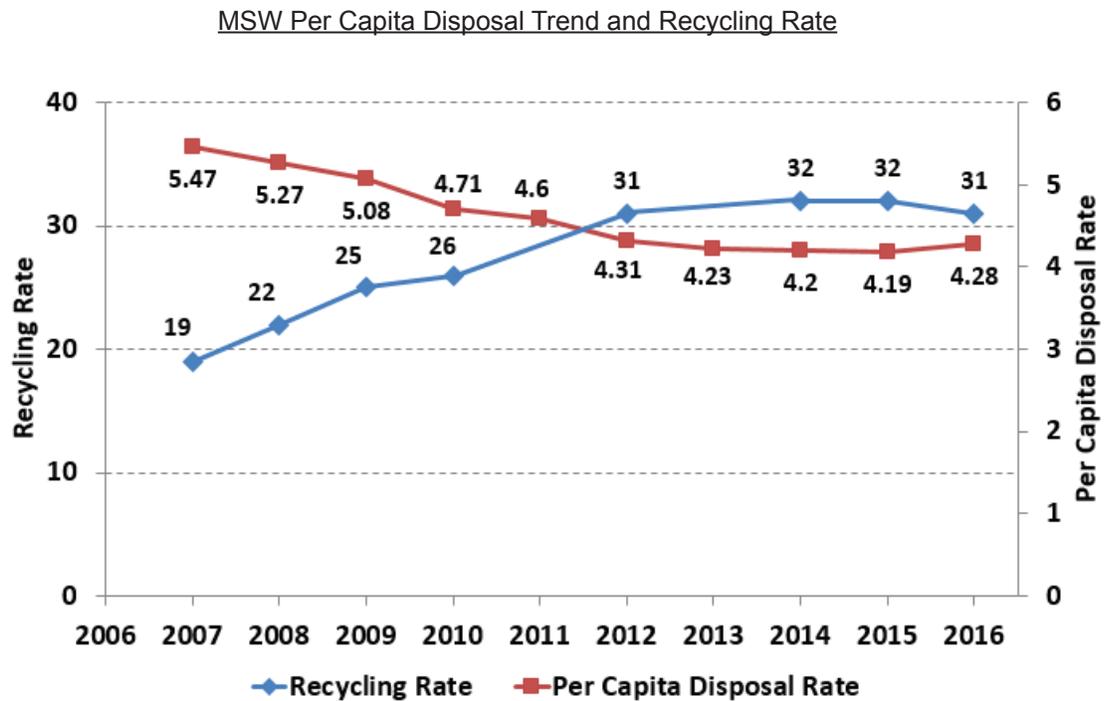
Current Conditions in 2016

Despite overall efforts to reduce waste, KDHE believes that landfilling of solid waste will continue for the foreseeable future at rates similar to what took place in 2015.

Per Capita Disposal and Statewide Recycling Rates

Figure 2-1 shows the per capita daily disposal rate and recycling rate from 2005 to present. The recycling rate increased significantly until 2011 as multiple communities implemented or expanded recycling programs. Since that time, the recycling rate has leveled off. Some minor increases are still anticipated as more single-stream curbside collection programs are implemented, but other factors, such as poor markets for recyclable materials and rural recycling program challenges could move overall recycling slightly in the opposite direction. Per capita disposal is directly related to the recycling rate; therefore, it has steadily decreased over this ten year period.

Figure 2-1



The continuous positive trend in these two rates appears to have ended in 2015 when the recycling rate dropped one percentage point and the per capita disposal rate went up a small amount. This outcome is believed to be associated with a very wet year in 2015 as compared to previous years. Much of Kansas experienced abnormally high rainfall in 2015 increasing the moisture content and weight of solid waste land-filled. This condition is likely to extend into 2016 which has received even higher precipitation amounts through late summer.

Overall, KDHE projects that the recycling rate will level off in Kansas at 33 to 35 percent which is very similar to the United States national average. Higher rates would require state mandated recycling, landfill bans for certain materials (such as yard waste), or other newly implemented waste reduction practices. None of these actions are anticipated. The per capita disposal rate is not expected to drop below 4.0 pounds per person per day without statewide mandates.

MSW Landfill Permitted Capacities and Regional Disposal Practices

Waste reduction and recycling conserves valuable landfill space. Over the past ten years, recycling alone diverted about 8 million tons of waste from landfills which is equivalent to one medium-sized landfill. Given the difficulty in siting new MSW landfills, general public opposition, impacts to the environment and nearby property values, and some unavoidable general nuisance (traffic, dust, noise, and odor), it is in the interest of all Kansans to conserve landfill space.

Kansas has 50 MSW landfills (17 Subtitle D facilities and 33 small arid landfills, all located in rural western Kansas counties). Table 2-2 lists all 50 MSW landfills and provides information for each on total permitted capacity, remaining capacity, and the projected number of years of remaining capacity based upon the current disposal rate.

Table 2-2

MSW Landfills - Permitted and Remaining Capacities

County	Facility Name	LF Type	Total Reported Permitted Capacity in Cu. Yds.	Total Reported Remaining Capacity in Cu. Yds.	Total Reported Remaining Capacity in Years
AL	Allen County Landfill	MSW	6,573,500	5,399,572	71
BA	Barber County	SAL	2,130,000	1,729,600	94
BT	Barton County	MSW	5,260,000	2,321,600	31.1
BU	Butler County	MSW	10,547,711	8,938,157	73
CA	Clark County	SAL	835,000	638,018	96.4
CF	Coffey County	MSW	1,050,000	708,057	29
CN	Cheyenne Co. Landfill	SAL	453,159	202,220	52
CR	Oak Grove Landfill	MSW	10,743,964	5,380,547	20.8
CY	Clay County SWF	MSW	412,625	197,818	17.86
DC	Decatur County	SAL	597,500	482,034	58
FI	Finney County dba Western Plains	MSW	16,327,649	12,837,425	112
FO	Ford County	MSW	8,741,417	7,096,866	66.4
GH	Graham Co. Landfill	SAL	519,042	267,312	52
GL	Greeley County	SAL	610,000	456,926	151
GO	Gove County	SAL	400,000	164,950	43
HG	Hodgeman Co. Landfill	SAL	147,000	91,651	15

Current Conditions in 2016

County	Facility Name	LF Type	Total Reported Permitted Capacity in Cu. Yds.	Total Reported Remaining Capacity in Cu. Yds.	Total Reported Remaining Capacity in Years
HM	Hamilton County	SAL	564,944	304,733	39
HP	Plumb Thicket	MSW	43,800,000	36,926,960	54
HS	Haskell	SAL	TBD	45,560	6
JF	N.R.Hamm	MSW	72,350,000	60,929,200	85.8
JO	Deffenbaugh Industries, Inc.	MSW	88,178,808	39,414,314	22
KE	Kearny Co SWF	SAL	486,950	477,077	47.3
KW	Kiowa County	SAL	208,000	62,827	7
LG	Logan County	SAL	202,153	44,680	12
LG	City of Oakley	SAL	1,479,355	10,580,023	212.6
MG	Resource Recovery, Inc. Landfill	MSW	3,200,000	723,229	11
MP	McPherson County	MSW	28,210,000	28,175,000	405.5
MT	Morton County	SAL	11,300,000	10,549,000	114.5
NO	City of Chanute Landfill	MSW	2,059,312	1,713,374	54.22
NS	Ness Co SWF	SAL	708,556	156,676	24
NT	Norton Co SWF	SAL	393,000	326,000	65
OB	Osborne Co. Landfill	SAL	729,000	497,720	34
PL	Phillips Co. Landfill	SAL	644,611	420,894	47
PR	Pratt County	SAL	8,566,350	6,874,958	198
RA	Rawlins County	SAL	294,500	210,135	42
RH	Rush Co SWF	SAL	1,062,700	811,700	150
RN	Reno County	MSW	7,700,000	2,485,279	12
RO	Rooks Co. Landfill	SAL	515,130	326,957	33
RS	Russell Co SWF	SAL	TBD	TBD	TBD
SA	City of Salina SWF	MSW	35,054,000	29,103,429	142
SN	Rolling Meadows Recycling and Disposal Facility	MSW	35,274,757	14,692,258	50.5
SD	Sheridan County	SAL	895,000	417,600	40
SH	Sherman Co. Landfill	SAL	2,438,181	2,284,349	318
SM	Smith Co. C&D	SAL	550,000	392,000	49
ST	Stanton County	SAL	95,000	93,000	10
SV	Stevens County	SAL	2,252,616	1,381,528	140
SW	Seward County	MSW	8,905,705	3,787,500	23.5
TH	Thomas Co. Landfill	SAL	Unknown	2,746,175	119.4
TR	Trego County	SAL	825,229	428,180	33
WA	City of Sharon Springs	SAL	127,001	123,361	33.9
WH	Wichita County	SAL	976,000	687,360	46.5

Overall, it is clear that landfill capacity is not an immediate or near-term concern in Kansas. The most significant concern may be the Johnson County/Deffenbaugh landfill which is by far the largest landfill in Kansas serving the Kansas City area and several other counties that transfer their waste to this facility. Even though this landfill has a remaining capacity that is projected to last 22 more years, local public and private planners should already be considering transfer and/or disposal options for when this landfill is no longer available. Very early talks among local officials should begin soon and be addressed in official bi-state planning efforts at least ten years before closure is anticipated. It is likely that all planning, local government deliberation, land use decisions, design, permitting (and potential land-owner challenges), and construction will take up to ten years. This timeframe assumes a new landfill will be developed to dispose of the 5000 tons per day presently managed at this landfill. If transfer to another existing landfill is the selected option, less time should be required; however, it is possible that multiple transfer stations may be needed in the metropolitan area to accommodate this waste volume.

Some rural counties may need to expand the permitted capacity of their small arid landfills over the next five to ten years. This process is usually fairly simple and can be accomplished in one to two years.

Regional Flow of Solid Waste

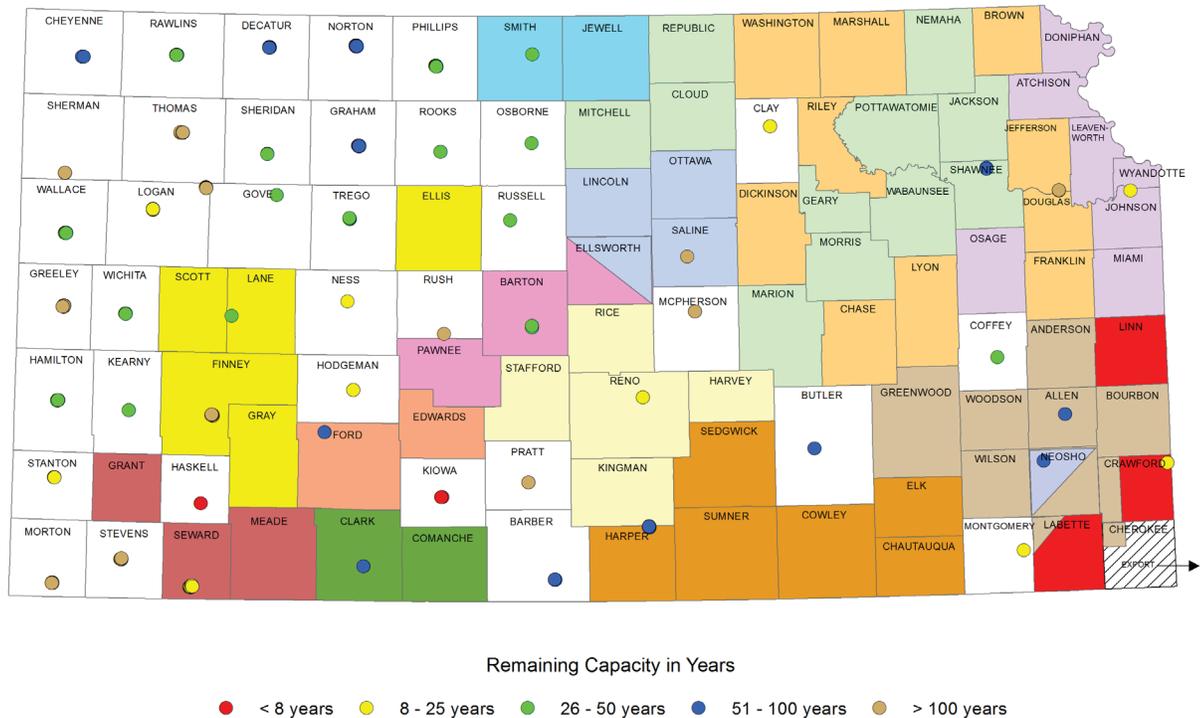
Figure 2-2 shows the location of all MSW landfills in Kansas and the counties using those landfills. This chart shows that about half of the counties transfer their MSW to a Subtitle D landfill located in another county. Color codes are used to indicate all counties using a certain Subtitle D landfill. For example, all counties using the Salina publically-owned landfill in Saline County are colored light blue. Kansas has 13 Subtitle D landfills providing regional disposal service to other counties. The longest waste transfers are 150 to 200 miles. Nearly all transfers are in standard semi-tractor trailers. Some minor amounts of waste are directly hauled in collection trucks to landfills in adjacent counties. The greatest volume transferred would be the Sedgwick County/Wichita waste which can exceed 2,000 tons per day. It is sent to the Waste Connections, Inc. Plumb Thicket Landfill in Harper County.

Other waste types (C&D, industrial, and special waste) are not transferred through standard transfer stations. Some C&D waste generated in Missouri (the Kansas area and southeast Kansas) is directly hauled to multiple C&D landfills in Kansas because Missouri does not permit these types of facilities. Disposal costs in Kansas is significantly lower than disposal in landfills designed to the Subtitle D standards in Missouri.

Projected waste flow patterns are likely to remain fairly constant; however, some small counties may wish to reevaluate former decisions and changes could take place (see Section 4).

Figure 2-2

MSW Disposal in Kansas



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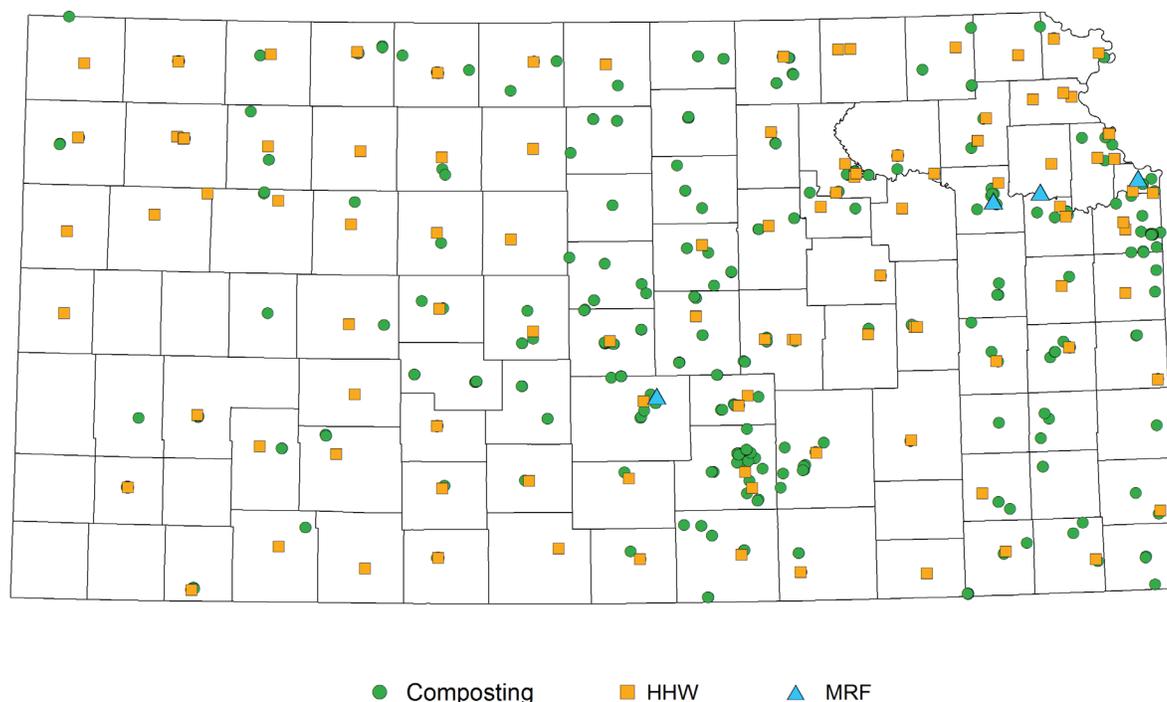
Waste Reduction Facilities

For the purposes of this subsection, reduction facilities includes permitted or registered composting and household hazardous waste (HHW) facilities and material recycling facilities (MRFs) that receive source-separated recyclables only. Other non-permitted recycling operations or miscellaneous material processing facilities are not addressed. Figure 2-3 shows the location of all composting and HHW facilities and the state’s four large MRFs. All of the HHW facilities and most of the composting facilities are owned and operated by cities and counties. All of the MRFs are owned and operated by private waste management companies.

State laws and regulations do not require cities or counties to ensure that these types of facilities are available to manage part of the MSW stream. All of these operations are voluntarily developed and operated to satisfy the provisions of locally adopted solid waste plans. In some cases, facilities are established by private companies as part of business development plans. Local governments may work cooperatively with private companies to provide needed services or they may provide such services to their citizens themselves.

Figure 2-3

Waste Reduction Facilities in Kansas
(Composting, HHW, MRFs)



Even though state laws and regulations do not require these waste reduction facilities, when a public or private entity implements such operations, standards of design and operation apply to ensure that public health and the environment are protected. Even the non-permitted MRFs must operate within certain parameters to maintain the permitting exemption and they must ensure that their operations adequately control all received material. For example, a MRF must not receive mixed MSW (that would be a “dirty” MRF subject to solid waste processing facility permits and operating requirements); all MRFs must control windblown litter; and MRFs must ensure that received material does not impact stormwater quality (Clean Water Act rules).

Landfill Gas Collection and Control

When MSW naturally decomposes in a landfill under normal anaerobic conditions (without adequate oxygen), it produces landfill gas consisting primarily of methane (natural gas) and carbon dioxide. It can also generate other odorous gases such as hydrogen sulfide which presents noticeable “rotten egg” nuisance even at very low concentrations. Because migrating landfill gas can pose dangerous hazards related to explosion, fire, crop damage, in addition to nuisance, air and waste regulations require landfills to monitor for landfill gas and control emissions, if the landfill is above a certain size. In Kansas, 14 MSW landfills have gas collection and control systems. Table 2-3 lists those landfills and certain facts about each system of control. Five of these

landfills are beneficially using the collected gas and the rest are destroying the gas in on-site flares. Types of beneficial use include electricity generation, direct use in industrial boilers, on-site production of infrared heat, and processing to produce high-Btu pipeline quality gas.

As the U.S. EPA tightens landfill gas emission regulations, more landfills may become subject to collection and control requirements and more gas recovery systems may be implemented.

It is noteworthy that odor concerns and complaints have grown related to landfills in recent years. Landfill gas is one contributing factor to landfill odor. These developments may lead to a greater need to routinely evaluate the performance of landfill gas collection and control systems with the need to make system improvements.

Overall, landfill gas management will be an important area of regulatory oversight

Table 2-3

MSW Landfill Gas Recovery & Use

SubD Landfill	Gas Control & Treatment	cfm of LFG	cf/day	% CH4	MmBtu/day	MmBtu/year
Allen County Landfill	Infrared heat & flare	90	129,600	30	40	14,574
Butler County Landfill	Flare	177	254,880	50	131	47,772
Cherokee County - Wheatland	Flare	564	812,160	50	417	152,221
"City of Wichita Landfill Chapin (not SubD)"	Blower/Flare	275	396,000	7	28	10,391
"City of Wichita Landfill Brooks (not SubD)"	Flare	1300	1,872,000	47	904	329,812
Crawford County - Arcadia	Landfill gas to energy	1000	1,440,000	51	754	275,294
Finney County Landfill	Flare	230	331,200	18	61	22,347
ForestView Landfill	Flare	761	1,095,840	52	585	213,606
Harper County - Plumb Thicket	Flare	553	796,320	56	458	167,163
Johnson County Landfill Defenbaugh/Waste Management	High Btu gas processing plant & 3 flares	6160	8,870,400	55	5,010	1,828,813
MARC -Mid America Regional Council (EPA Model Landfill)	Blower	100	144,000	12	18	6,477
"Montgomery County Resource Recovery"	Flare	438	630,720	52	337	122,943
Reno County Landfill	Flare	379	545,760	44	247	90,016
Rolling Meadows Landfill	Landfill gas to energy	2266	3,263,040	53	1,776	648,278
Seward County Landfill	Direct use National Beef	40	57,600	40	24	8,637

MmBtu = 1,000,000 Btu
1 cubic foot of natural gas = 1027 Btu

going forward over the next decade.
Solid Waste Planning Regions

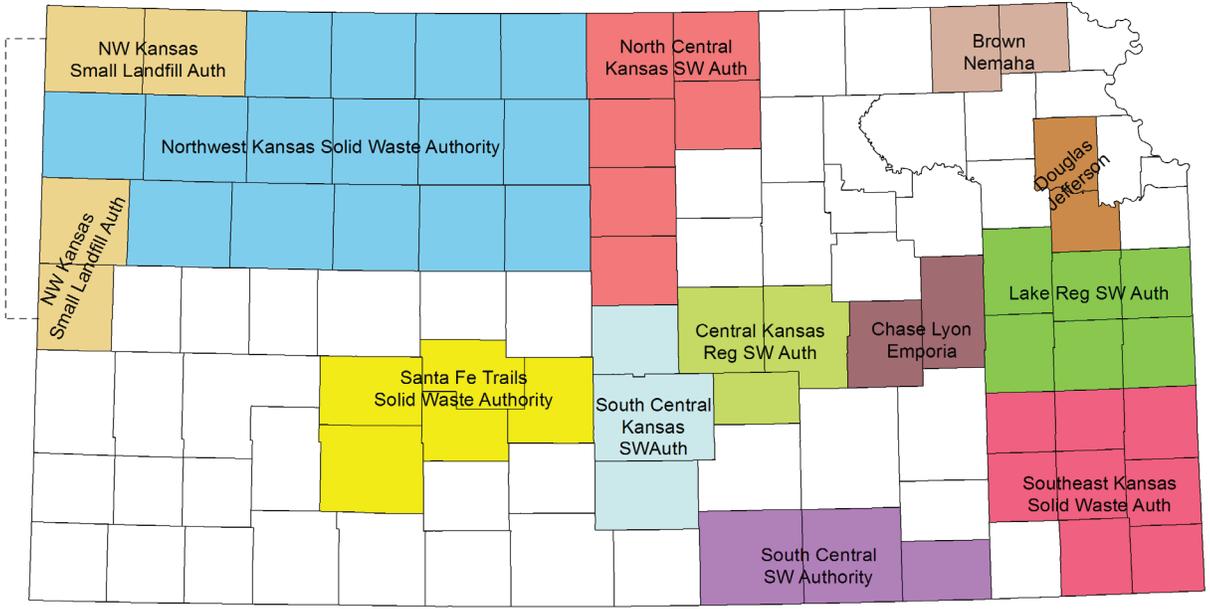
State law requires every county to develop and maintain an up-to-date solid waste management plan. Counties may plan regionally and cooperatively work with other counties to implement various aspects of solid waste management including disposal, recycling, HHW collection, or other selected practices. Initially, many counties planned regionally because state law provided more grant funding to develop regional plans as compared to individual county plans. However, most of the counties that planned regionally implemented solid waste practices individually. Those counties may have cooperated with respect to certain solid waste programs such HHW collection the marketing of recyclables, but they typically operated their own landfills and/or transfer stations, composting facilities, and recycling operations.

Some counties that originally planned as part of a region decided over the past decade to disband their region, but most have not because of the paperwork process and cost associated with preparing the required new individual solid waste plans. Consequently, many counties are still part of a regional plan, even though they totally or nearly totally carry out day-to-day solid waste management activities individually.

Figure 2-4 shows the current location of planning regions. KDHE will continue to

Figure 2-4

County and Regional Solid Waste Planning



Shaded counties are part of a region; Unshaded counties plan individually

facilitate any requests by counties to modify regional makeup.

Trends in MSW Compositions

MSW composition data is relevant to various solid waste management planning decisions, especially decisions related to the expansion or implementation of recycling programs. Composition data indicates where potential waste reduction opportunities may still exist. The presence of yard waste or other organic materials may guide decisions related to the expansion of composting operations. The lack of certain materials may also help planners decide that certain new or expanded programs are unwarranted.

Over the past 20 years, KDHE has carried out three studies related to MSW composition in Kansas. The most recent study was a limited sampling effort carried out in 2012 to update a more comprehensive study performed in 2003. Clear differences in composition were observed in the waste sampled during these two projects which were ten years apart. Some of the observations follow:

- Recyclable paper products in landfilled waste (newspaper, office paper, corrugated, and magazines) decreased from 32 percent to 15 percent. This change was likely linked to two major factors including: (1) less newspapers were sold; and (2) more of all of these materials were recycled in 2012.
- Other paper increased from 7 percent to 17 percent. This largely consists of more unrecyclable packaging of fast food and other contaminated paper.
- Plastics increased from 8 percent to 18 percent; however, most of the increase was in the “other plastics” category which is not the traditionally recycled beverage containers (HDPE#2 or PET#1).
- Food waste increased from 13 percent to 17 percent.
- Disposable diapers increased from 2 percent to 6 percent.
- Yard waste which is very seasonal stayed nearly constant at 7 percent.
- Most other components including metals, textiles, glass, HHW, and other miscellaneous material decreased from about 28 percent in combination to about 15 percent.

Four years later in 2016, some additional changes would likely be observed due to market factors and changes in recycling practices. Newspaper sales continue to decrease over this period, fewer people collect grass clippings when mowing lawns, but some communities implemented separate collection of yard waste to divert material from landfills (a factor that would move the yard waste percentage in the opposite directions), fast food restaurants have more thoroughly transitioned into paper packaging rather than plastic, and, most importantly, several cities and counties have implemented curbside collections programs for many new recyclables. Because of curbside single stream programs, “other paper and plastics” previously disposed are now being recycled in many large and medium-sized cities. The overall effects of these changes should increase the percent of certain materials including food waste, textiles, diapers, contaminated paper products, and other miscellaneous materials.

Current Conditions in 2016

It appears that the one sure area of increase and opportunity for waste reductions is food waste. There is a higher percentage of food in the waste stream because other components have decreased and possibly even more food waste because people seem to be wasting more food. The U.S. EPA has recognized this trend and focused upon food waste as a target area for waste reduction.

Another opportunity to improve waste reduction is the expansion of single stream curbside programs in more communities. Not only will this result in the collection of more traditional recyclables, it will divert more “other plastics and other paper” (such as junk mail, cereal boxes, etc.) from landfills because such materials are less likely to be recycled without curbside programs.

Section 3

State Role 2016 to 2020

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Statutory Directives

Most duties and functions of KDHE related to solid waste management in Kansas are defined in K.S.A. 65-3406. Other sections of law including K.S.A. 65-3401 through 65-3427 establish additional areas of staff responsibility and statewide requirements for the regulated community that also influence staff efforts. KDHE's overall use of time and financial resources to administer all aspects of solid waste regulatory, technical assistance, financial assistance, and public education programs are established in these applicable sections of state law. Solid waste regulations add more specific requirements for the regulated community resulting in other areas of focus for assigned staff. The Bureau of Waste Management has the responsibility for implementing most aspects of the state solid waste program; however, the Bureau of Environmental Field Services performs most compliance inspections and complaint investigations.

2016 Solid Waste Plan Compared to Past Plans

The four earlier versions of the state solid waste management plan identified numerous areas of potential KDHE activity to implement various goals, objectives, and strategies. As explained in Section 1, those plans lacked focus and did not clearly identify the highest priority tasks over the next five years. The overwhelming and diverse list of identified areas of state effort in each of those plans along with demands on staff time resulting from daily challenges consistently limited outcomes directly tied to the plans.

To most effectively use state resources during the next four years and to maximize results, this update to the state plan is more focused with respect to KDHE recommended efforts. In this plan, KDHE efforts are classified as either: (1) the maintenance of existing programs, or (2) new state initiatives and special projects. As explained above, most KDHE responsibilities are well-defined in state law and the department must perform duties as directed. Ongoing program priorities are listed in this section along with resource challenges that could impact performance. Possible KDHE initiatives are identified to address these

challenges. This section also provides a focused list of new initiatives, all of which are aligned with statutory directives and authorities, that KDHE should pursue during this planning period (2016 to 2020).

Staff and Financial Resources

K.S.A. 65-3427 stipulates that KDHE may employ up to 44 full-time staff to carry out all of the duties related to administering the comprehensive state solid waste program. KDHE currently (2016) employs about 42 people in the solid waste program. Program staff include mostly scientists, engineers, and geologists along with some administrative support personnel.

The solid waste program is funded primarily with revenue generated by the disposal of most types of solid waste in landfills. The \$1 per ton landfill tonnage fee generates approximately \$4.2 million per year. This amount has been steadily declining for more than a decade as recycling and other waste reduction practices increase. A much smaller amount of revenue is collected for solid waste permit fees (about \$100,000 per year). KDHE has discretion to utilize these funds for all authorized areas of expenditure listed in K.S.A. 65-3415a(c). It is noteworthy that approximately 25 percent of all collected revenue is diverted for administrative overhead expenses. Consequently, the funding available for direct program expenditures is about \$3.2 million per year.

Since revenue has trended downward while costs have gradually increased, program expenditures have necessarily been decreased in multiple areas including grants for waste reduction projects, dump clean-up and repair, and public education and outreach.

Maintenance of Existing Programs

Most of KDHE's staff time during the 2016 to 2020 planning period will be spent to carry out core program functions (or duties) that have been ongoing for many years. A list of these duties follows:

- Review solid waste permit documents including but not limited to new facility applications, applications to modify existing permitted facilities, operating plan amendments, closure/post-closure cost estimates and financial assurance demonstrations, and groundwater monitoring plans and annual reports
- Perform compliance assessment inspections of permitted solid waste facilities and implement enforcement actions as necessary for non-compliance
- Investigate all solid waste complaints and take appropriate actions including enforcement and technical assistance
- Oversee the closed landfill monitoring and maintenance program
- Administer the special waste disposal process

State Role 2016 to 2020

- Administer the illegal dump clean-up program in cooperation with local governments.
- Administer the old city dump assessment and repair program
- Administer a shrinking grant programs related to waste reduction/recycling
- Provide technical training and other assistance using meetings, conferences, workshops, newsletters, mailings, and online training methods
- Review solid waste beneficial use requests
- Review requests for disposal without a permit
- Maintain an inventory of pre-selected animal burial sites associated with large confined animal feeding operations

No significant changes are needed with respect to the performance of the above duties; however, minor improvements in operational practices will be addressed through the department's overall Quality Improvement (QI) program.

The ability of the department to carry out these duties depends on two things: (1) the availability of adequate financial resources; and (2) the ability to hire and retain qualified staff.

As explained above, program revenue has decreased and despite intention KDHE actions to reduce expenditures, spending over the past several years has exceeded revenue. Projections indicate that the fund balance will likely be adequate for most if not all of this planning period. However, revenue and a shrinking fund balance will be inadequate to cover these essential functions, all stipulated by statute in approximately 2020. For this reason, KDHE should carry out the following:

Goal 1 – Complete Solid Waste Program Funding Assessment with Recommendations

By no later than July 1, 2017 perform a comprehensive assessment of the solid waste management fund and, if necessary, prepare a proposal for legislative consideration to increase program revenue.

Trends within KDHE to hire and retain qualified staff has been a growing problem, especially as related to hiring licensed professional engineers and geologists. In the solid waste program, most senior staff have either have left the department or will leave by the end of this planning period. Many of these losses have been related to retirements but some have been decisions to seek better career opportunities outside of state government. When candidates are sought for licensed professional positions or other senior management positions, few if any candidates apply. The overall knowledge and experience level of staff has steadily declined over the past decade and the trend appears to be growing more significant. The lack of experience presents challenges and concerns with respect to the ability to perform timely reviews of documents, to ensure that public health and the environment are protected, to address technical questions in a

fair and consistent manner, and to perform other essential program functions.

The challenge of hiring and retaining qualified staff leads to the following immediate need:

Goal 2 – Hire and Retain Qualified Solid Waste Program Staff

Solid waste program managers should work with state human resources to develop and implement an ongoing strategy for hiring and retaining qualified technical staff. In addition, ongoing assessments of staff capabilities and anticipated losses should be carried out to discern deficiencies, make assignments, establish priorities, determining training needs, and develop transition plans.

Solid Waste Initiatives and Special Projects

In addition to ensuring that essential core duties of the state solid waste program are performed, KDHE will need to devote staff time to address certain known special project needs and other unknown situations and needs that may arise. These initiatives and special projects are listed and explained below. Goals are included as appropriate to direct staff efforts.

Update Solid Waste Regulations

Over this planning period, several new and updated solid waste regulations will be drafted and adopted following standard administrative procedures. These include the following list:

- Naturally occurring radioactive material (NORM) management and disposal regulations
- Coal combustion residuals (CCR) management and disposal regulations
- Medical waste management and disposal regulations
- MSW landfill closure and post-closure care regulations
- Final cover regulations for construction and demolition waste landfills

Other regulations may also be considered for adoption during this period if necessary to address issues and concerns that may arise.

Goal 3 – Develop or Update Solid Waste Regulations

Develop a schedule for developing or updating each of the regulations listed above during this four year planning period. Interested or affected stakeholders should be utilized for each regulatory package.

Regulatory Developments at the Federal Level

The U.S. EPA may adopt new regulations that impact solid waste management in Kansas. Such regulations address MSW landfill design and operation, landfill gas management, industrial waste disposal, e-waste management, the definition of a solid waste, and making hazardous waste determinations. BWM must monitor such developments and oversee the implementation of new or changing requirements in Kansas. Such changes may lead to the need to implement new state policies and regulations as are being carried out with the federal CCR regulations. Those regulations required changes to all coal power plant CCR permits.

EPA also sets national goals and priorities that do not necessarily have regulatory implications. These developments are monitored to determine applicability and potential value in Kansas. Examples of such EPA initiatives include food waste diversion from MSW landfills, e-waste collection and recycling, and various other sustainability concepts. There is no mandate to make any of these non-regulatory changes in Kansas.

Goal 4 – Monitor Federal Developments Related to Solid Waste Laws, Regulations, and Policies

Prepare an annual summary of any new federal developments that will impact solid waste management practices in Kansas and implement changes in state programs as appropriate.

Adequacy of Waste Reduction Practices

The statutory “statement of policy” (K.S.A. 65-3401) establishes waste reduction as an ongoing goal. Specifically, state law affirms that “it is the policy of the state to: (e) Encourage the wise use of resources through development of strategies that reduce, reuse, and recycle materials.” Additional statutory provisions authorize KDHE to adopt regulations related to waste reduction and recycling, provide education and training to the public and facility operators, and to administer grant programs related to waste reduction practices.

Section 1 briefly summarized the findings of the waste reduction “Adequacy” study completed in 2013 that concluded new waste reduction laws or regulations were not needed in Kansas at that time. However, KDHE has continued to work with other solid waste management organizations to promote and encourage recycling including the Solid Waste Association of North America (SWANA) Kansas Sunflower Chapter and the Kansas Organization of Recyclers (KOR). The following existing strategies will be followed:

- Co-sponsorship of annual conferences and workshops such as the WORKS! Conference that began in 1995 and participation in regional roundtables hosted by SWANA and KOR
- Administration of available grant programs as funds allow to provide financial assistance for waste tire recycling projects, “green school” waste reduction projects, and improvements in county and regional household hazardous waste collection programs

- Administer an annual calendar art contest for Kansas students to promote waste reduction and generally to keep Kansas clean
- Participation in various local and regional outreach programs to support local waste reduction programs
- Participation in and sponsor special meetings to address new waste management and recycling challenges such as the recycling of agricultural plastic films
- Promote the diversion of organics such as yard waste, food waste, and other special industrial wastes from landfills to composting facilities or organic digesters to recover energy
- Review county and regional solid waste management plans to ensure that local planners are addressing waste reduction as required by state planning laws

Goal 5 – Reassess the Adequacy of Waste Reduction Practices in Kansas

Carry out a study of waste reduction practices in state fiscal year 2018 (five years after the initial study) to determine if existing programs are adequately meeting overall waste management needs (landfill capacity, availability of recycling and composting services, etc.).

Disaster Response Activities

Most natural disasters generate significant quantities of solid waste (tornados, floods, fires, wind storms, ice storms, etc.). Some large events can overwhelm local waste management capabilities and special emergency provisions are necessary to facilitate the prompt and proper management of generated debris. KDHE typically works with other emergency response officials to assess conditions and provide technical assistance related to establishing emergency processing and disposal sites, waste segregation and screening protocols, and changes to existing permitted facility operating plans. The Kansas Emergency Response Plan assigns the duty to establish and implement the work of the Debris Management Unit to the Bureau of Waste Management or another KDHE designated group. Debris management needs can be major and dominate staff activity for extended periods of time. This work generally becomes the highest priority work of solid waste program staff when debris-generating disasters occur.

Goal 6 - Provide Technical Assistance to Local Governments and Other Emergency Management Officials in Response to Natural Disasters

When a debris generating natural disaster occurs KDHE will report to the local command center as soon as possible to provide needed technical assistance. Additional staff will be mobilized as necessary to assist with response activities.

Landfill gas recovery systems

MSW landfills and some construction and demolition landfills generate landfill gas (mostly carbon dioxide and methane; hydrogen sulfide less commonly at some C&D

landfills). KDHE has developed a landfill gas fact sheet including answers to frequently asked questions to provide information to interested parties about composition, migration, hazards, collection, and beneficial use (see Appendix C).

Landfill gas can create explosive hazards if it migrates to nearby buildings or other conduits; it can impact adjacent agricultural crops; it can present health hazards if hydrogen sulfide is present; and it can be a public nuisance due to odor. To minimize risks and nuisance, gas collection systems are required in all MSW landfills above a certain size. These gas collection systems are subject to both air and waste regulations. Systems may or may not include operations to beneficially use the methane (natural gas) present in the collected gas.

The operation and maintenance of gas collection systems can present difficult challenges for various reasons including the settling of waste that may bend and crimp gas well piping and water infiltration into wells impeding gas collection. Despite having a large network of wells in a waste mass, some gas is likely to escape through other emission pathways, mostly through soil cover. Even systems that are characterized as “compliant” with air and waste regulations likely emit significant amounts of gas to the ambient air.

Goal 7 – Evaluate the Effectiveness of Landfill Gas Collection Systems at All Landfills

A study should be cooperatively carried out by the Air and Waste Management Bureaus of KDHE during this study period to assess all landfill gas collection and control systems including evaluations of compliance with applicable regulations and other performance considerations.

Section 4

Reevaluation of Local Solid Waste Management Decisions

Background

As explained in Section 1, all earlier versions of the state solid waste management plan and all associated state laws and policies related to solid waste planning direct and encourage local governments to make their own decisions regarding preferred waste management practices. Local decisions must be made within a framework of state laws and regulations that specify technical standards of design and operation for a wide variety of solid waste facility types. For example, a county may choose the primary type of facility to receive collected municipal solid waste (either a landfill or a transfer station); however, the applicable minimum technical standards that apply to the facility to ensure that public health and the environment are protected are established at the state level by KDHE.

As part of county planning, local governments must also decide the types and scope of waste reduction practices that will be implemented. Kansas' planning laws and regulations require every county to consider available waste reduction activities and develop a schedule for implementing such programs; however, those requirements do not mandate any specific practices, waste reduction goals, or landfill disposal bans. It has always been the policy of state government to avoid statewide mandates as related to waste reduction because Kansas is a diverse state with respect to many relevant factors. These include things such as population density, annual precipitation, financial resources, and available landfill capacity. In addition to these tangible factors, citizen opinions vary by regions, especially as related to setting environmental priorities. For example, certain college towns and larger, wealthier cities tend to support the implementation of more aggressive waste reduction programs and local rules than rural communities. This does not mean that waste reduction practices are considered unimportant in rural counties; however, the need to implement programs may seem less obvious to a larger percentage of the local population and practical challenges related to the cost of collection and transportation may impact the feasibility of certain program types. This has resulted in widely differing local programs across Kansas related to recycling, composting, and the collection of household hazardous waste.

Reevaluation of Local Solid Waste Management Decisions

All Kansas counties selected and incorporated solid waste management practices into the plans that were initially completed in the mid-1990s. These included major decisions related to things like in-county waste disposal versus waste transfer, and secondary decisions related to the types of waste reduction practices that would be implemented. Only a few counties have revisited the major decisions and shifted from landfill to transfer, or vice versa. Several counties have gradually modified plans to expand waste reduction practices by expanding recycling or adding new central composting facilities. Overall, in 2016, most counties continue to operate their solid waste management system in accordance with the decisions made 10 to 20 years ago.

Routine Solid Waste Plan Reviews

Each county is required by state law to review their solid waste plan annually and carry out a more comprehensive review and plan update, including a public hearing, every five years. Counties must provide evidence to KDHE that these steps have been completed. These reviews are opportunities to evaluate all relevant practices and factors to ensure that existing waste management practices can be sustained and to decide whether local practices should be modified to address various developments or changes in cost, public opinion, or policy. Some counties take these plan reviews very seriously, particularly the five-year plan updates, whereas other counties consider this state requirement to be of limited value. The Kansas counties that are satisfied with simply maintaining the “status quo” regarding their solid waste management practices generally complete the plan reviews to comply with the minimum state planning requirements only. This is understandable and particularly true of small to medium-sized counties that have made significant investments in solid waste management infrastructure, including landfills, transfer stations, HHW facilities, and recycling facilities; and all associated equipment. Overall, the county planning process has been oriented toward sustaining local solid waste programs, perhaps with some minor improvements along the way, rather than a time to consider major changes in practices. Even those counties that take the solid waste planning process more seriously tend to “stay the course,” meaning sticking with the major decisions of the past.

In summary, counties are reluctant to consider major changes to solid waste management practices as part of their planning process for the following reasons:

- Major investments by public and private entities have been made to obtain permits, build facilities, train people, etc. to result in the solid waste system as it presently exists.
- Financing mechanisms, contracts, and individual and business agreements have been established to provide ongoing funding for the existing system of waste management services.
- Personnel resources have been developed and funded to operate and administer the existing solid waste programs.

- Existing facilities, buildings, and equipment have significant remaining periods of operational life.
- Public opinion is generally satisfied with the existing waste management system.

Need to Reevaluate Existing Waste Management Systems

The information above illustrates that solid waste planning in Kansas has become an exercise primarily related to complying with state laws and regulations. Secondly, some counties use the process to: (1) make minor incremental improvements in waste management systems that were established many years ago and (2) ensure that the selected waste management system addresses changing demographics and waste generation trends.

Given these circumstances, does it make sense for a county to evaluate whether major changes in solid waste management practices may be warranted? The answer to this question for most counties is probably, “No.” While ongoing improvements in the comprehensive waste management system can and should be improved through the solid waste planning process, it is likely that major changes are unwarranted because some or all of the factors listed above apply.

However, a need to reassess the major decisions of the past may be appropriate, or necessary in some counties as situations arise. Examples that should prompt a major reevaluation include groundwater contamination discovered at a small arid landfill, running out of landfill capacity, and a major increase in the disposal cost of transferred waste. A reevaluation of waste reduction program activities may be warranted due to other factors such as an increase in the value of certain recyclable materials, a loss of markets for some collected recyclables, and a desire to save transfer/disposal costs for yard waste by diverting organic material into local composting programs.

Based upon the above, there appear to be two general scenarios for counties that carry out routine solid waste plan reviews and five-year updates. Under both scenarios, counties must comply with minimum state planning requirements, but the differences are summarized below:

1. Most counties will plan to maintain existing systems ensuring they meet changing waste generation needs, new or modified technical standards, and evolving public opinion all within human and financial resource constraints and priorities.
2. Some counties face greater waste management challenges in addition to addressing the more general system maintenance and improvements mentioned in #1 above. These counties will be candidates to carry out major solid waste management system evaluations.

Some counties may choose to perform more detailed solid waste system evaluations even if not forced to do so by a major new development that impacts the con-

Reevaluation of Local Solid Waste Management Decisions

tinued feasibility of their existing system. For example, some counties may wish to consider long-term needs even though maintenance of their existing system may be the preferred short-term approach. Such counties may recognize that their existing system may have a finite life and they are examining options that could be pursued ten or more years in the future.

Local governments facing immediate planning challenges or those with less urgent interests in assessing long-term county options need to consider various major issues such as land ownership for a new facility and surrounding land use/zoning, state permitting, public participation, and a phased approach to transitioning from one type of waste management system to another. For example, if a county knows its existing landfill will reach its capacity in 10 to 20 years, they should probably begin looking for a new landfill site or alternatively a transition to waste transfer. If a new landfill is desired, it is necessary to identify a suitable property (purchase it if necessary), carry out public meetings to inform residents of the county's long-term intent to use existing "green property" as a future landfill to ensure that potential development on adjacent property would be carried out with full knowledge of the county's plan, and possibly to move forward with some site development and improvement.

While the need for major solid waste system reassessments as part of county solid waste planning is limited, at any one time multiple Kansas counties should be considering long term goals and potential major shifts in existing practices. Such assessments should be carried out as part of the planning process, most appropriately during a required five-year plan update.

New Planning Tools for Reevaluating Past Waste Decisions

KDHE provides guidance to counties regarding the completion of annual solid waste plan reviews and five-year updates. Those guidelines will be modified by the end of 2016 to include minor and major decisions that counties may choose to reassess due to immediate needs or long-term interests. Some key areas of recommended reassessment are listed below (these types of questions address areas of change rather than simply sustaining existing programs and operations):

Major MSW Management Decisions

- Should the existing MSW disposal system be modified or replaced?
 - Is an existing MSW landfill at or near capacity?
 - Can an existing MSW landfill be expanded or is a new site needed?
 - If a new site is or will be needed has the county identified the site and considered all factors associated with purchase, public relations, zoning/land use, roads/access, etc.?
 - Should a current MSW landfill be replaced by transfer out-of-county?
 - Should an existing transfer operation be replaced by an MSW landfill?
 - Should an existing C&D landfill be modified to include MSW waste as well?

Reevaluation of Local Solid Waste Management Decisions

- Should an existing MSW landfill be converting to a C&D landfill only?
- Should a government run system be replaced by a private system (or vice versa)?
- Should a new transfer option be identified because of cost or other factors?
- Should a new regional facility be considered and cooperatively developed with other counties?
- Should existing waste reduction practices be modified?
 - Do the existing waste reduction programs adequately reduce waste to satisfy public goals and other needs (e.g., Is MSW disposal in a small arid landfill at or near the 20 tons per limit)?
 - Has the county ever carried out a cost-benefit analysis for recycling and composting operations in light of available landfill space?
 - Is public participation in waste reduction programs adequate to justify continuation of such programs (i.e., what percent of the population is participating)?
 - Do stable markets exist for all collected recyclables?
 - If the county operates a small arid landfill (SAL), have HHW and conditionally exempt small quantity hazardous waste generator disposal practices been evaluated to determine potential risks to losing the exemption?
 - If MSW is transferred, has the county assessed the cost/benefit of operating an HHW program?
 - If the county is transferring MSW, has an analysis been performed to determine the cost saving associated with the development or expansion of a yard waste/food waste composting program?
- Should a new financing mechanism be developed to satisfy long-term solid waste management needs?
- Should the county adopt any new local regulations or ordinances to facilitate the implementation of the desired solid waste management system, including expanded waste reduction practices?
- Does the county need to enter into new contracts or agreements with other parties (public and private) to achieve waste management goals or establish long-term services?
- Does the county solid waste plan address potential needs in cases of natural disasters (tornados, flood, high winds, ice storms, fires, etc.)?

Section 5

National Trends and Issues

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Background

Various developments at the regional or national level could influence solid waste management practices in Kansas. The U.S. EPA could adopt new solid waste regulations applicable to all states or similarly, Congress could pass new laws amending the Resource Conservation and Recovery Act which serves as the basis for most solid and hazardous waste regulations and policies. New information related to risks and hazards may be developed influencing waste management practices and ultimately serving as the basis for new laws and regulations. New or improved technologies and practices of design and operation may be applicable to Kansas waste management systems. Other states may adopt regulations and policies that influence Kansas practices. Finally, market driven forces related to disposal and waste reduction may influence Kansas practices. These kinds of factors are always at work. Some trends can be observed; some possibilities can be predicted; other developments are unknown.

This section examines some existing national trends and initiatives and some anticipated areas of focus and their potential effect on Kansas.

Current National Trends

U.S. EPA Sustainable Materials Management Initiative

U.S. EPA solid waste focus in 2016 revolves around a concept introduced a few years earlier - - “sustainable materials management (SMM).” EPA defines SMM as:

“Sustainable materials management is a systemic approach to using and reusing materials more productively over their entire lifecycles. It represents a change in how our society thinks about the use of natural resources and environmental protection. By looking at a product’s entire lifecycle we can find new opportunities to reduce environmental impacts, conserve resources, and reduce costs.”

While SMM is a broad concept, EPA's efforts have been focused upon a few areas including food waste, electronics, the federal government example, packaging, and secondary materials/beneficial use. EPA also developed a five-year SMM strategic plan to stimulate various actions by public and private parties to pursue various SMM goals and objectives. Many states have adopted EPA's SMM concepts and terminology and even changed the names of divisions, bureaus, and sections accordingly.

KDHE Response to SMM: KDHE believes that the concepts set forth in EPA's SMM program are generally sound and practical. As appropriate some SMM concepts will be considered as new state regulations, policies, and outreach initiatives are developed and implemented. However, KDHE does not intend to reprioritize existing program goals and objectives to more closely align with EPA's narrow SMM goals.

Product Stewardship Institute - Extended Producer Responsibility Laws

The Product Stewardship Institute (PSI) strongly promotes the passage of state laws and regulations that establish "extended producer responsibility (EPR)" related to the management of waste generated through the use of certain products. EPR laws relate to things like mercury switches, e-waste, paint, carpeting, etc. PSI has developed principles and guidelines related to EPR legislation. The first principle states:

"Producers are required to design, manage, and finance programs for end-of-life management of their products and packaging as a condition of sale."

One goal of EPR legislation is to ensure that environmentally sound systems are established to collect, recycle, treat, and/or dispose of "hard to manage" waste materials which are often broadly generated by households and small businesses or offices in addition to larger more thoroughly regulated businesses. EPR legislation requires manufacturers to independently or in cooperation with local governments (or others) establish practical systems to recover the "waste" generated at the end of life of their products. Under EPR laws, responsible producers should build the waste management costs into the costs of their products.

More than 30 states have at least one EPR law on their book in 2016. Kansas has none.

KDHE Response to EPR: EPR philosophy assumes that the current waste management system does not adequately or safely manage the generated wastes covered by the laws. KDHE believes that some waste types are more difficult to manage than others, but overall, the current combination of HHW facilities and MSW landfills is adequate. The addition of EPR laws and associated administrative burden will not significantly improve the level of environmental protection or the reduction of nuisance. The types of materials covered by EPR laws are safely managed in Kansas by the existing waste management systems.

EPA Emphasis on Greenhouse Gas Emissions

Even though greenhouse gas (GHG) emissions are regulated under “air” programs, solid waste management programs and facilities are affected. EPA’s goals to minimize the emission of methane is affecting MSW landfill operations and it will influence composting operations. EPA continues to adopt stricter landfill gas rules that will apply collection and control standards to smaller landfills than had been previously covered. EPA prefers that more organic waste, especially yard waste and food waste, be diverted from the anaerobic landfill environment to the aerobic treatment process of composting (assuming the process is properly carried out).

KDHE Response to GHG Initiatives: KDHE will work with newly affected landfills to comply with EPA’s GHG regulations and to ensure that gas collection and control systems are functioning. Solid waste regulations already require gas collection and monitoring systems designed primarily to protect worker safety and to minimize risks to nearby property owners and damage to adjacent agricultural fields. KDHE is supportive of the diversion of organic materials to composting operations, but does not believe this practice should be mandated. Expanded composting will be encouraged and KDHE will provide education and technical training to facilitate such practices.

State Landfill Bans

Several states have established landfill bans for various waste stream components to save landfill space, to minimize the disposal of materials containing hazardous constituents, and to stimulate recycling. The most common examples include yard waste (23 states) and e-waste (at least 20 states). Some states have also banned the disposal of recyclables in general although enforcement of such laws may be limited.

KDHE Response to Landfill Disposal Bans: KDHE is not supportive of statewide landfill disposal bans. As explained in other sections of this plan, landfill space is not a concern. Also, precipitation and population density vary significantly from east to west, affecting yard waste generation and making statewide mandatory diversion unnecessary and impractical. KDHE also believes that MSW landfills can safely dispose of e-waste. The heavy metal lead that is present in the glass in old video monitors that need disposal is not environmentally mobile in a landfill environment and there is no evidence of impacts at facilities where disposal has occurred.

Single-Stream Curbside Collection of Recyclables

Single-stream curbside collection of recyclables has increased nationwide, including in Kansas over the past decade. This practice has significantly increased the amount and types of recyclables collected.

KDHE Response to single-stream curbside collection of recyclables: While single-stream collection of recyclables present certain challenges (e.g., glass contamination in paper products and ceramic contamination in glass, etc.), KDHE is supportive

of continued expansion of this practice in Kansas. Technical support and training will continue to be provided in coordination with Kansas SWANA and the Kansas Organization of Recyclers at annual conferences and through other means of outreach. Mandatory statewide curbside collection of recyclables (single stream or segregated) is not warranted in Kansas.

New EPA Solid Waste Regulations

EPA has announced that they will revise the CCR regulations in response to an agreement reached with the coal-burning electric utility industry and environmental groups. The changes will affect all state regulatory programs overseeing facilities that manage CCRs.

KDHE Response to New CCR Rules: KDHE will adopt and enforce these new rules along with the initial CCR rules.

Future Considerations

Future national trends or developments that could influence solid waste management in Kansas include:

New regulations. Except for the revised CCR regulations mentioned above, no other new solid waste regulations are anticipated. EPA's most recent published regulatory agenda (Spring 2016) contains nothing related to solid waste management.

Commodity price fluctuations. Many recycling programs have been severely impacted by low commodity prices, especially programs in rural communities.

More stringent air regulations related to the control of GHG may lead to the development of more collection and control programs and more beneficial use projects including the conversion of vehicle fleets to compressed natural gas (CNG).

Further movement toward digital records should lessen the consumption of paper and its presence in the MSW stream; however, this does not seem to have had the expected effect thus far.

More nationwide lifecycle assessments of products could modify the waste stream by shifting to materials that generate less resource and environmental impacts.

More large national corporations could adopt zero waste policies and goals, or other aggressive waste reduction policies, influencing conditions everywhere. This concept could apply to large influential retailers whose purchasing power can result in major shifts in available products.

As long as natural gas prices remain low, there is little incentive to implement projects to anaerobically treat organics in bioreactors to produce usable methane.

Appendix A

**Kansas Coal Combustion Residuals
Part 265 Plan**

Appendix B

Executive Summary

Adequacy of Waste Reduction Practices in Kansas

December 2013

Appendix C

Landfill Gas Fact Sheet