APPENDIX A

DEFINITIONS OF TERMS USED IN THIS DOCUMENT
Appendix A

Definitions of Terms used in this Document

*Clean rubble* includes products such as concrete and concrete products (including reinforcing steel), asphalt pavement, brick, rock, and uncontaminated soils that are not mixed with other construction and demolition debris.

*Composting* is a controlled process of microbial degradation of organic material into a stable, nuisance-free, humus-like product.

*Construction and demolition debris (C&D)* is waste resulting from the construction, renovation, and demolition of buildings, sidewalks, roads, and bridges.

*County* when capitalized and used as part of the phrase “the County” means the Johnson County Board of County Commissioners or designated agent.

*Cradle-to-cradle* is a term coined in 2002 by authors William McDonough and Michael Braungart with the publication of their book *Cradle to Cradle: Remaking the Way We Make Things* (Northpoint Press). The book suggests that products should not be designed to be thrown away, since there is no real “away” anywhere, and any products that become waste should be able to be returned to the “cradle” for re-manufacturing or reprocessing.

*Discards* include municipal solid waste remaining after recovery for recycling and composting. These discards are landfilled.

*Disposal* refers to the management of discards by landfilling or other solid waste end-of-life management option such as waste-to-energy.

*Diversion* as used in this document refers to the removal of solid waste from the waste stream prior to disposal. For example, diversion through recycling or composting.

*Durable goods* are products having a lifetime of three or more years such as appliances, furniture, carpets, tires, lead-acid batteries, luggage, electronics, etc.

*Generation* as used in this document refers to the weight of materials and products as they enter the waste management system from residential, commercial, and institutional sources and before materials recovery through recycling or composting takes place.

*Intermodal containers* or vessels transport freight using multiple transportation modes such as rail, ocean-going ship, trucks, etc.

*Municipal Solid Waste (MSW)* is the waste stream that is ready for management through recycling, composting, or disposal from residential, commercial, and institutional sources.
**Nondurable goods** are products having a lifetime of less than three years such as newspapers and other paper products, plastic plates & cups, trash bags, disposable diapers, containers and packaging, etc.

**Non-hazardous industrial process wastes** are generated at industrial and manufacturing facilities. These wastes are classified as special waste for landfill disposal reporting requirements and must be permitted for disposal at the Johnson County Landfill, Inc. by the Johnson County Environmental Department.

**Preconsumer (industrial) scrap** is a waste stream generated at the point of manufacturer. An example of this type of waste would be plastic trimmings from a container manufacturing facility. Industrial scrap is not included in municipal solid waste generation or recovery estimates.

**Put-or-pay contracts** means that a county or city guarantees that a certain amount of waste will be delivered to a processing or disposal facility. If there is a shortfall, the entity entering into the contract is responsible for financially making up the difference. These guarantees often arise as a condition for privately funded construction of facilities.

**Recycling** is a series of activities by which discarded materials are collected, sorted, processed, and converted into raw materials and used in the production of new products.

**Recovery** of materials as used in this document includes products and yard waste removed from the waste stream for the purpose of recycling and composting.

**Septic haulers** are private haulers permitted by the Johnson County Environmental Department to pump out septic tanks and/or grease traps/interceptors.

**Small quantity generator (SQG)**, according to Kansas hazardous waste regulations, must meet the following conditions to be classified as a SQG: 1) the facility generates 55 lbs or less of hazardous waste or no more than 2.2 lbs of acutely hazardous waste in a calendar month and 2) the facility accumulates (on-site) no more than 2,200 lbs. of hazardous waste, no more than 2.2 lbs. of acutely hazardous waste, or no more than 55 lbs. of debris and contaminated materials from the clean up of spillage of acutely hazardous waste.

**Source reduction** activities reduce the amount or toxicity of wastes before they enter the municipal solid waste management system. Reuse is a source reduction activity involving the recovery or reapplication of a package, used product, or material in a manner that retains its original form or identity. Reuse of products such as refillable glass bottles, reusable plastic food storage containers, or refurbished wood pallets is considered to be source reduction, not recycling. Source reduction activities (e.g., backyard composting of yard trimmings) take place ahead of generation.

**Special waste** refers to any solid waste that, because of physical, chemical, or biological characteristics, requires special management standards due to concerns for owner or operator safety regarding handling, management, or disposal. Special wastes must be
permitted for disposal at the Johnson County Landfill, Inc. by the Johnson County Environmental Department.

**Tip fees** are the per ton fee customers pay at waste processing facilities (for example, a landfill). Also called gate fees, the term refers to waste that is “tipped” from a truck onto a receiving area.

**Volume-based waste collection rate structure** (i.e., pay-as-you-throw): Charging customers based on the amount (volume) of trash they put out at the curb for trash collection rather than a flat rate. The more trash put out for collection – the higher the fee.

**Yard waste** as used in the document refers to leaves, grass, and brush generated from ordinary yard and garden maintenance at residential and commercial establishments. Not included are trees, logs, and large branch removal as a result of land clearing, utility line clearing, and city/county activities.
APPENDIX B

ACRONYMS USED IN THIS DOCUMENT
### Acronyms Used in this Document

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<td>BOCC</td>
<td>Board of County Commissioners</td>
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<tr>
<td>C&amp;D</td>
<td>Construction and Demolition</td>
</tr>
<tr>
<td>CAA</td>
<td>Community Analysis Area</td>
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<td>CARNP</td>
<td>Comprehensive Arterial Road Network Plan</td>
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<td>CFC</td>
<td>Chlorofluorocarbon</td>
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<td>CVP</td>
<td>Curbside Value Partnership</td>
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<td>DOT</td>
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<td>EOC</td>
<td>Emergency Operations Center</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<td>ERG</td>
<td>Eastern Research Group</td>
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<td>ES&amp;D</td>
<td>Engineering Solutions &amp; Design, Inc.</td>
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<td>FIFRA</td>
<td>Federal Insecticide, Fungicide, and Rodenticide Act</td>
</tr>
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<td>HB</td>
<td>House Bill</td>
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<tr>
<td>HDPE</td>
<td>High-Density Polyethylene</td>
</tr>
<tr>
<td>HHW</td>
<td>Household Hazardous Waste</td>
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<td>HMCF</td>
<td>Hazardous Materials Collection Facility</td>
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<tr>
<td>IWSA</td>
<td>Integrated Waste Services Association</td>
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<td>JCED</td>
<td>Johnson County Environmental Department</td>
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<td>KCP&amp;L</td>
<td>Kansas City Power &amp; Light Company</td>
</tr>
<tr>
<td>KDHE</td>
<td>Kansas Department of Health and Environment</td>
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<td>LEOP</td>
<td>Local Emergency Operations Plan</td>
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<td>MARC</td>
<td>Mid-America Regional Council</td>
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<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>MRF</td>
<td>Materials Recovery Facility</td>
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<td>MSW</td>
<td>Municipal Solid Waste</td>
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<tr>
<td>MWP</td>
<td>Mixed Waste Processing</td>
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<td>NSWMA</td>
<td>National Solid Wastes Management Association</td>
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<td>OCC</td>
<td>Old Corrugated Containers</td>
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<td>PAYT</td>
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<td>SQG</td>
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<td>TCP</td>
<td>Thermal Conversion Process</td>
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<td>TIF</td>
<td>Tax Increment Financing</td>
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<td>WTE</td>
<td>Waste-to-Energy</td>
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<tr>
<td>WTERT</td>
<td>Waste-to-Energy Research and Technology Council</td>
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</table>
APPENDIX C

DOMINATE SOILS FOR SANITARY FACILITIES

Section Introduction and Table 14-b

Reprinted from the
Soil Survey of
Johnson County, Kansas

Fieldwork by Bruce C. Evans and Lonnie R. Miller,
Natural Resources Conservation
Service

United States Department of Agriculture,
Natural Resources Conservation Service,
in cooperation with
the Kansas Agricultural Experiment Station

Additional information is available at
Dominate Soils for Sanitary Facilities
Section Introduction and Table 14-b

Introduction

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation;
and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

**Sanitary Facilities**

Table 14b shows the degree and kind of soil limitations that affect sanitary landfills and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.
The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an area sanitary landfill, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion. Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.
## Appendix C
### Dominate Soils for Sanitary Facilities

Johnson County, Kansas

The information in this table indicates the dominant soil condition but does not eliminate the need for

<table>
<thead>
<tr>
<th>Map symbol and soil name</th>
<th>Pot. of map unit</th>
<th>Trunk sanitary landfill</th>
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<td>Rearing class and limiting features</td>
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CLIENTS:JOCO/KC081858
01.03.08  3607.00.001.001 C-5
## Dominate Soils for Sanitary Facilities

### Table 14b.--Sanitary Facilities--Continued

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<td>Clayey 0.50</td>
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</tbody>
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**Note:** The table above provides a detailed analysis of various soil categories and their impact on sanitary facilities, including flooding, seepage, depth to water table, and clay content, among other factors. The values indicate the percentage of the map unit affected by these factors, along with the severity of the impact on the sanitation facilities.
### Appendix C

#### Dominate Soils for Sanitary Facilities

<table>
<thead>
<tr>
<th>Map symbol and soil name</th>
<th>Pot. of map unit</th>
<th>Trench sanitary landfill</th>
<th>Area sanitary landfill</th>
<th>Daily cover for Landfill</th>
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<td>Rating class and limiting features</td>
<td>Rating class and limiting features</td>
<td>Rating class and limiting features</td>
<td>Rating class and limiting features</td>
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<td>Somewhat limited</td>
<td>Too clayey</td>
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<tr>
<td></td>
<td>Depth to</td>
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<td>Saturated zone</td>
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<td>Slope</td>
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*Johnson County, Kansas*
### Appendix C  
Dominate Soils for Sanitary Facilities

#### Table C16: Sanitary Facilities – Continued

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<th>Map symbol</th>
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### Notes

- Depth to bedrock is measured in meters.
- Rating class and limiting features are based on specific soil characteristics and their impact on sanitary facility design.
- Area sanitary landfill refers to the area required for sanitary landfill operations.
- Daily cover for landfill indicates the daily application of material to the landfill area.

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**Soil Survey**

274

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**CLIENTS\JOCO/KC081858**

01.03.08 3607.00.001.001  C-8
### Table 16b—Sanitary Facilities—Continued

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APPENDIX D

LOCAL EMERGENCY OPERATIONS PLAN

Reprinted from

Local Emergency Operations Plan (LEOP).
Annex O - Debris Removal & Disposal.
July 2005.
DEBRIS REMOVAL & DISPOSAL

RESPONSIBILITY: The Johnson County Public Works Department is responsible for coordinating debris removal and disposal in the unincorporated areas of the county. For the incorporated areas, the cities are responsible for this coordination, with the county providing secondary support if needed and available. In emergency situations, where limited local resources may require centralized coordination & prioritization, the Public Works Group in the county Emergency Operations Center (EOC) will assume this responsibility.

LOCAL RESOURCES: Current listings of local resources available for debris removal & disposal must be maintained.

- **Jurisdiction:** The County Engineer maintains a listing of county Public Works Department owned equipment and trained operators. The County Engineer will also collect and maintain similar listings of appropriate equipment and operators from the Airport Commission, Wastewater Department, and the Park & Recreation District. Cities with public works and/or parks departments will be responsible for maintaining similar listings of their own resources.

- **Contractual:** The county Environmental Departmental maintains lists of local contractors and equipment rental businesses, including those qualified to remove hazardous materials, substances or wastes, asbestos and lead-based paint. The Greater Kansas City Metropolitan Emergency Resources Catalog is a directory of services, supplies & equipment available through local chapters of the Heavy Constructors Association & the Associated General Contractors of America under the provisions of “Plan Bulldozer” following a locally declared disaster.

VOLUNTEERS: There is no formal organization of volunteers specifically for the purpose of removing & disposing of debris. Unaffiliated volunteers will be referred to a Disaster Volunteer Reception Center if established; otherwise they will be referred to the Kansas City Community Organizations Active in Disaster (KCCOAD) or specific volunteer agencies.

MUTUAL AID AGREEMENTS: Johnson County Resolution 115-95 implements the authority to render & receive emergency mutual aid. A Memorandum of Understanding (19 July 1990) between the Heavy Constructors Association of the Greater Kansas City Area, the Kansas City Chapter of the Associated General Contractors of America, and Johnson County describes the provisions of “Plan Bulldozer.” (See also the Basic Plan)

ORDINANCES & REGULATIONS: Specific county regulations that may impact debris removal & disposal are listed below. Cities may establish their own ordinances, provided those ordinances are not less restrictive than existing county regulations.
- **Placement of Debris:** The county has adopted the 2003 International Fire Code, which specifies that a 3-foot clear space be maintained around the circumference of fire hydrants.

- **Recyclable Materials:** There are no county regulations with respect to segregating recyclable materials.

- **Private Contractors:** Under the jurisdiction of the District Attorney, private contractors assisting with debris removal and disposal must be registered through the Johnson County Department of Planning, Development, & Codes.

- **Burnable Debris:** Permits from the local fire departments are required to conduct any open burning. Additionally, open burning exemptions may be required from the Johnson County Environmental Department to comply with Kansas Air Quality regulations.

**FACILITIES & INFRASTRUCTURE:**

- **Landfills:** The county has six landfills, all of which are permitted as construction & demolition (C/D) landfills, meaning solid waste disposal areas used exclusively for the disposal of C/D wastes. The definition of C/D waste includes vegetation from land clearing, utility maintenance & seasonal or storm-related cleanup. Johnson County Landfill, Inc., a privately owned & operated facility, is by far the largest landfill and the only sanitary landfill (accepts trash & non-hazardous wastes) in the county.

The following table provides some basic information on county landfills. Their locations can be seen in Figure O-1.

<table>
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<tr>
<th>Landfill</th>
<th>Owner/Operator</th>
<th>Permit</th>
<th>Access</th>
<th>Accepts</th>
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<td>C/D</td>
<td>Public</td>
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</tr>
<tr>
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<td>Holland Corporation</td>
<td>C/D</td>
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<td>C/D &amp; brush only</td>
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<tr>
<td>Johnson County Landfill 17500 Holiday Drive, Shawnee</td>
<td>Deffenbaugh Industries</td>
<td>C/D &amp; MSW</td>
<td>Public</td>
<td>Trash, C/D &amp; brush, non-hazardous waste</td>
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<tr>
<td>O’Donnell &amp; Sons Landfill 1600 W. 151st St., Olathe</td>
<td>O’Donnell &amp; Sons/Deffenbaugh Industries</td>
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<tr>
<td>Overland Park Landfill 17000 W. 53rd St., Shawnee</td>
<td>City of Overland Park</td>
<td>C/D</td>
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<td>C/D &amp; brush only</td>
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<td>Olathe Landfill 127th St. &amp; Hedge Lane, Olathe</td>
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<td>C/D</td>
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<tr>
<td>Reno Landfill 167th &amp; Metcalf, Overland Park</td>
<td>APAC-Kansas, Inc./Reno Construction Division</td>
<td>C/D</td>
<td>Public</td>
<td>C/D &amp; brush only</td>
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</tbody>
</table>
Structural Characteristics: Johnson County Landfill, Inc. is the only lined landfill in the county.

Restrictions: None of the county landfills will accept radiological material, hazardous chemicals, hazardous material wastes, free liquids in bulk, or animal carcasses.

Transportation Routes: Once appropriate landfills, temporary staging areas and/or reduction sites are determined, transportation routes to these facilities will be included in debris disposal announcements to the public. Considerations for route selection will include truck size, length of haul, traffic patterns, road conditions and facility access. Designated routes for hazardous materials, if any, will be included.

PUBLIC INFORMATION: The following elements of public information are specific to debris removal & disposal. (See also Annex C: Public Information)

Public Awareness: Timely information will be provided to the public on the magnitude of the situation, as well as the sequence of debris removal & disposal operations. Public officials and environmental groups should be briefed on the burning methods used, how the systems work, environmental standards, and associated health issues and risks.

Reporting: Incidents of illegal dumping or the locations of illegal dump sites should be reported to the law enforcement agency in that jurisdiction.

Contracting: The requirements for public notices for contracts may be modified or waived entirely, if deemed necessary, following a declared local emergency. Various public information channels (i.e., newspapers, radio & television, etc.) will be used to notify contractors of such departures from the normal contracting process.

CRITERIA FOR DEBRIS REMOVAL: Debris removal activities will be prioritized in the following order:

Threats to Public Health & Safety: Debris as threat to lives, public health, and safety, including debris which obstructs passage of emergency vehicles and access to critical facilities.

Prevention of Damage: Debris posing the threat of significant additional damage to public structures (buildings, roads, etc.), or private property.

Speedy Recovery: Debris hindering the economic recovery of the impacted community.

Debris on Private Property: The property owner is responsible.
○ **Homeowner’s Insurance:** Most homeowner fire and extended coverage insurance policies have special coverage for debris removal and for demolition of heavily damaged structures.

○ **Debris Removal:** Specific guidance with respect to debris pick-up may be provided to the public following disaster or emergency.

○ **Right of Entry:** Should local governmental resources be used to remove debris from private property when it poses a hazard to public health or safety, a right of entry agreement will be executed with the property owner. The right of entry agreement shall include a waiver of liability for government workers and specify any known owner intent to rebuild, to ensure that the foundation and utilities are not damaged further during debris removal operations.

**TEMPORARY DEBRIS STAGING & REDUCTION SITES:** Sites selected for temporary debris staging & reduction will be on public property with sufficient acreage to handle anticipated needs. Selection criteria will include minimum noise impact, adequate traffic flow and environmental considerations.

**DEBRIS REDUCTION METHODS:** The following are acceptable methods of debris reduction:

- **Burning:** Different burn methods can be utilized to reduce debris:
  - **Air Curtain Pit Burning:** Expedites the volume reduction process and has fewer environmental concerns than open burning.
  - **Controlled Open Burning:** Cost effective method for reducing clean, woody debris in rural areas. Must be terminated if mixed debris enters the waste stream.
  - **Refractor Lined Pit Burning:** Pre-manufactured refractory lined pit burners can be erected on site in a minimal amount of time. Reduction rate can be as high as 95% and air pollution is minimal.

- **Grinding & Chipping:** Although more expensive than burning, grinding & chipping are more environmentally friendly methods. Chippers are ideal for use in residential areas, orchards or groves. Grinders are better suited for use at debris staging and reduction sites.

- **Recycling:** Should be considered early in the debris removal & disposal operations, since it may present an opportunity to reduce the overall cost.
  - **Ash:** From burn operations; can be recycled as a soil additive.
Appendix D  Local Emergency Operations Plan

- **Mulch**: From chipping & grinding; can also be recycled.
- **Metals**: Can be recycled through landfill operations or by private organizations.
- **Soil**: Clean-up operations using large pieces of equipment pick up large amounts of soil. This soil can be recovered through screen or shaker systems and sold or recycled back into the community. The disposal of contaminated soils will be coordinated through the Environmental Department.
- **Construction Materials**: Concrete block and other building materials can be ground and used for other purposes. Construction materials and wood can be shredded to reduce volume.

**ULTIMATE DISPOSAL SITE**: Decisions on an ultimate disposal site (or sites) will be based upon the type(s) of debris involved, the proximity of existing public or private landfills, and any restrictions or capacity limits on their use.

**CLOSING TEMPORARY DEBRIS STAGING & REDUCTION SITES**: Prior to returning temporary debris staging & reduction sites to their previous use, all federal, state and local environmental requirements must be met:

- **Removable of Debris**: Sites must be cleared of all foreign materials introduced as a result of the incident.

- **Environmental Assessment**: An environmental assessment or audit may be conducted by the Environmental Department, Kansas Department of Health & Environment and/or the Environmental Protection Agency to establish the need for a testing or monitoring program. This assessment should be done on ash, soil, ground & surface water.

- **Environmental Restoration**: Contamination may occur from petroleum spills at staging & reduction sites, or runoff from the debris piles, burn sites, and ash piles.
APPENDIX E

SUPPLEMENTAL SOLID WASTE FLOW MAPS
These 4 landfills received 66% of all MSW disposed in Kansas in 2005.

Map Source: 2005 Kansas Solid Waste Management Plan Overlay: Johnson County Environmental Department
Figure 2-1

Municipal Solid Waste Flows in Kansas

Source: 2005 Kansas Solid Waste Management Plan
Landfills in Region

Source: Johnson County Environmental Department
Estimated Predominant Waste Flow of Region
(Variations exist within each county)

3,065,300 tons MSW dispose of in 4 Kansas landfills in 2005
738,494 tons MSW dispose of in 4 Missouri landfills in 2005

Source: Johnson County Environmental Department
Appendix E  Supplemental Solid Waste Flow Maps

Solid Waste Facilities Serving Northeast Kansas
(2005 Tonnage - Transfers and Disposal)

Source: Kansas Department of Health and Environment
APPENDIX F

EXECUTIVE SUMMARY
JOHNSON COUNTY SOLID WASTE ANALYSIS FINAL REPORT

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Johnson County Solid waste Analysis Final Report
Engineering Solutions & Design, Inc.
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EXECUTIVE SUMMARY

In September 2006, the Johnson County (Kansas) Environmental Department (JCED) retained Engineering Solutions & Design, Inc. (ES&D) to perform a series of waste characterizations – also referred to as waste picks or waste sorts – at three selected sites within the county (Johnson County Landfill, City of Olathe Transfer Station, and APAC-Reno Construction and Demolition Debris Landfill). The waste characterization study process includes field sorting events at three selected sites in Johnson County, Kansas.

Johnson County is located in the northeastern part of Kansas. It is bordered by the Kansas River, Wyandotte County and Leavenworth County to the north, the Kansas-Missouri stateline to the east, Miami County to the south, and Douglas County to the west.

During the week of September 18, 2006, ES&D conducted site visits at the three facilities selected for the waste characterization study. ES&D’s project team along with JCED staff met with the landfill or transfer station manager at each facility and explained the waste sort procedure and the waste sort team’s needs. Then, the project team toured each facility, reviewed the facility’s operating procedures, and discussed the facility’s service areas. The project team conducted an inspection at each facility in order to ascertain the best and least intrusive area for the team to conduct the waste sort. Detailed discussions were undertaken between the project team and each facility manager to identify the flow of waste into each site, day-to-day variations in solid waste delivered to each site, and any specific peculiarities in the solid waste delivered to each site.

For this solid waste analysis study a total of two seasonal sorts were conducted at each facility. The first seasonal sort was conducted in October 2006. The second seasonal sort was conducted in late March and April 2007.

APAC-Reno Construction and Demolition Debris Landfill Procedures

The waste sort process at this site involved three steps. The first step was an initial interview of all vehicles that delivered waste to the landfill’s working face. This initial interview involved obtaining information on the type of waste and the waste’s origin. Once the initial interview was completed, the driver was sent to the working face. At the working face loads were randomly selected for sorting.
Once a sample load was identified, the driver was directed to discharge the load. Because the construction/demolition debris loads are not compacted and the landfill operations staff divides the loads once the delivery vehicle is unloaded, a majority of the waste materials were visible and no further separating action was necessary.

Once the load was discharged, it was visually inspected by walking around the load in a clockwise direction and then once the load had been circumnavigated, the walk around direction was reversed and the load was visually inspected again. Each load was visually inspected, all observed materials were noted, and measurement areas were flagged. Additionally, photographs of each sampled load were taken.

Measurement areas were inspected and the identified material was measured. The results of the measurements were noted. When possible, in addition to measuring identified materials, the entire load was measured to obtain an approximation of the load’s volume.

**Johnson County Landfill and Olathe Transfer Station Procedures**

At each facility the waste sort team was comprised of the project manager, the project coordinator, an individual to collect and record data, and a minimum of four additional individuals to assist in the sorting process. All waste sort team members were outfitted with Tyvek protective suits, Kevlar lined gloves, safety goggles, hard hats, and high-visibility safety vests.

The project manager and project coordinator ensured that the site was secure, identified any changes in the site operation, and communicated with site operations staff. Additionally, these two team members began the set-up process and tested the scales to ensure proper operation and accuracy.

The first step in the sort process was setting up the site. Two tents were configured as work stations with sort tables where portions of the sample were placed for categorizing. Two individuals sorted and categorized waste in each tent. The third tent was configured for material weighing and data gathering. Two scales were utilized for weighing samples and sorted waste. A floor scale (with the capacity to accurately weigh up 300 pounds) was positioned adjacent to the tracking table and a smaller scale (with the capacity to accurately weight up to 50 pounds) was placed on the tracking table.
Once the sort area was setup, the next step was selecting loads for sampling. When a vehicle arrived at the site, a very brief, initial interview was conducted with the driver to determine the load’s content and collection location. If this interview revealed the load did not meet the study parameters, the driver was directed to the working face or tipping floor and the load was not sampled. If the load did meet the study parameters, the driver was directed to unload the vehicle in the designated area. After the vehicle was unloaded, the driver was interviewed in more detail. In addition to completing an interview with the vehicle driver, a detailed visual inspection of each selected load was undertaken. This visual inspection entailed observing the load being discharged from the collection vehicle and walking around the entire perimeter of the load once it was discharged (a walk around). During the unloading and walk around inspections, all anomalies and large seams of a particular waste category were noted. At least three photographs of each load were taken.

The load was randomly selected keeping in mind that a broad spectrum of data was desired. After a load was selected and the portion to be sampled was determined, the physical waste sort began. Waste was gathered from the designated load portion and placed into sampling bins. The sample bins were carried to the sort area and weighed. After the sample bins were weighed, they were taken to one of two sort stations. Each sort station was comprised of two tables with a series of various sized bins. Each bin was labeled with a specific material category. Solid waste was removed from the sample bins and placed on the tables where it was sorted into the waste-material categories by placing the material in the bin that best corresponded to the material. As each bin became full, it was weighed on a digital bench scale and its weight recorded. This process was then repeated for each sample. After the team sorted, categorized, and weighed the designated sample, the waste was discarded. Depending on the facility and site constraints, the waste was discarded onto the tipping floor or the landfill working face.

The data for each sample was recorded on forms prepared for each site. Data for each sample was recorded on separate forms. The sampling program was checked twice daily for consistency and completeness.
APAC-Reno Construction and Demolition Debris Landfill Results

During the two seasonal waste sorts at the APAC-Reno Construction/Demolition Debris Landfill, the project team observed some unique activities that may affect the characteristics of the solid waste collected and disposed at this facility. For example:

1. The loads delivered to the site were relatively clean with little contamination. Sorting this material could be easily accomplished with the proper screening process.

2. A large amount of asphalt shingles are delivered to the site. These could be utilized for on-site roads if ground and run through a magnet to remove roofing nails and other metals.

3. The control of stormwater run-on to the face was very good.

4. The control of unacceptable waste was very good. Two spotters were on site to check loads and if any unacceptable materials were found they were quickly removed.

5. The wet weather conditions during the spring sort impacted the number of loads delivered to the site. A total of 42 vehicles delivered loads to the site during the two-day spring sorting event. In contrast, during the two-day fall sorting event at this site, 166 loads of waste were delivered to the site.

6. Two other issues impacted the number of vehicles delivering waste to this site during the spring sorting event:
   a. The facility’s owners implemented a rate increase in January 2007.
   b. A transfer truck’s load was rejected approximately two weeks before the spring sorting event was undertaken. No transfer trucks owned by this particular company delivered any waste to this site during the two-day spring sorting event.

7. Yard waste that was delivered to the site arrived in bulk, in plastic bags (non-biodegradable), in biodegradable bags, and loose. The loose yard waste appeared to be thrown into the roll-off containers, rather randomly in most cases, which likely reflects either disposal by others than the intended roll-off users of the roll-off or the roll-off was at a residence where a portion of the work was to remove some of the on-site vegetation.
A survey of all vehicles delivering waste to the working face of this landfill was undertaken as a part of the data gathering activities conducted during the two seasonal waste sorts.

During the fall sort, a total of 166 vehicles were surveyed and 78 of these vehicle loads were sampled. Data from the vehicle survey provided information regarding where the load was collected (both state and county), the number of vehicles delivering waste to the facility from a particular county, and the amount of waste delivered to this facility from a particular county during the fall sorting event.

A total of 99 loads of waste delivered to this facility during the fall and spring sorting events was sampled; 78 of these loads were sampled during the fall sorting event and 21 of the loads were sampled during the spring sorting event.

During the fall sorting event, the top five items sighted in the 78 sampled loads included: (1) scrap lumber; (2) metals; (3) cardboard; (4) wood pallets; and (5) carpet. The top five items sighted in the 21 loads that were sampled at this facility during the spring sort included: (1) scrap lumber; (2) furniture; (3) drywall; (4) cardboard; and (5) yard waste/tree limbs.

From the data collected the majority of waste delivered to the site is from new housing or house remodeling efforts. These loads contain a significant amount of scrap lumber, shingles, drywall, insulation, and metals.

To further determine the impact these top ten materials have on the loads delivered to the APAC-Reno Construction/Demolition Debris Landfill, 50 of the 99 sampled loads were measured to further define the composition of the loads. Of the 50 loads measured, 20 loads contained at least 53% scrap lumber with 7 of the loads containing more than 75% scrap lumber. Cardboard was found in 10 of these 50 measured loads and the average percentage of cardboard in these loads was 10.

**Olathe Transfer Station Results**

During the waste sort at the Olathe Transfer Station, the project team observed some unique activities that may affect the characteristics of the solid waste collected and disposed at this facility. For example:

1. The site was well organized and provided a number of services for residential users.
2. The transfer station building was relatively small and this size appears to cause queuing and very tight unloading areas.
3. Food products typically contaminated loads. This contamination was often limited to the bag or container in which the food was disposed.

4. The loads observed appeared to contain mostly bagged waste with limited amounts of loose waste.

5. During the spring sorting event, muddy conditions at the Hamm Waste Services Landfill near Perry, Kansas (the destination of the transfer trucks serving this transfer station) reduced the supply of transfer trailers at the transfer station. This affected the transfer station operation, which in turn resulted in less room for to vehicles unload and reduced the opportunity to capture samples. Consequently, 10 loads were captured for sampling each day during the spring sorting event instead of the 12 sample loads captured each day during the fall sorting event.

During the fall sort, 169 vehicles delivered 602.96 tons of solid waste to the Olathe Transfer Station. The majority of the waste delivered to the Olathe Transfer Station was residential waste (63.63% by weight) and the majority of this residential waste was delivered via Olathe collection vehicles (86.72% by weight). The only mixed waste delivered to this facility was via other professional collection vehicles (non-Olathe owned vehicles) and it comprised a small percentage of the waste stream (3.95% by weight).

The number of private vehicles that delivered waste to this facility (39.07%) and the amount of waste delivered via private vehicles accounted for 10.22% of the waste stream. The number of vehicles that delivered commercial waste comprised 11.57% of the total number of vehicles that delivered waste to this facility. Commercial waste accounted for 18.27% of the amount of waste (by weight) delivered to this facility.

A total of 44 loads of solid waste were selected for sampling during the fall and spring sorting events conducted at this facility. Of these 44 sampled loads, 28 were comprised of residential waste (63.3%), 12 were comprised of commercial waste (27.3%), and 4 were comprised of mixed waste (9.1%).

Data from the fall sorting event indicates that the paper fibers component is the largest part of the waste stream at this facility by weight (42.43%). However, the plastics component is the largest part of the waste stream by volume (41.83%), closely followed by the paper fibers component which is 37.28% of the waste stream by volume.
Data from the spring sorting event indicates that the paper fibers component is again the largest part of the waste stream at this facility by weight (39.59%). The plastics component is the largest part of the waste stream by volume (39.41%) and it is again closely followed by the paper fibers component which is 35.71% of the waste stream by volume.

When the data from the fall and spring sorting events is combined, the results are not much different than those for the individual seasonal sorting events. Paper fibers is the largest component of the waste stream by weight (41.09%) and plastics is the largest component of the waste stream by volume (40.69%).
Food is a significant part of the waste stream by weight (17.38% in the fall; 17.36% in the spring; and 17.37% for fall and spring combined). However, food is not a significant part of the waste stream by volume. In the fall, it comprised only 4.73% of the waste stream by volume; in the spring it comprised 4.74% of the waste stream by volume; and for the fall and spring combined it comprised 4.73% of the waste stream by volume.

One other material category merits mention. Yard waste accounted for 6.59% of this waste stream by weight during the fall sorting event and 3.26% of the waste stream by volume. During the spring sorting event, yard waste accounted for 9.31% of the waste stream at this facility by weight and 4.62% of the waste stream by volume.

The residential, commercial, and mixed waste streams at the Olathe Transfer Station were analyzed and compared. The following bar chart presents this comparison.

![Bar Chart]

- **Residential Waste**
- **Commercial Waste**
- **Mixed Waste**
Johnson County Landfill Results

During the waste sort at the Johnson County Landfill the project team observed some unique activities that may affect the characteristics of the solid waste collected and disposed at this facility. For example:

1. Landfill equipment operators compact the waste quickly to provide areas for the collection vehicles to unload.

2. Most collection vehicles appeared to be rear packers. These trucks tend to have a greater number of seams of loose waste which creates less consolidation of plastics and cardboard.

3. Food products typically contaminated the loads. This contamination was often limited to the bag or container in which the food was disposed.

4. During the fall sorting event, access to roll-off containers was difficult because these trucks were directed to a separate working face. During the spring sorting event, all vehicles were unloading at one working face. Access to the roll-off containers for sampling purposes was much easier.

5. The location of the working face during the spring sort was in an area of the landfill that was quite narrow and this resulted in a tighter working area for the trucks and landfill equipment. Because of the narrower working face, cover material was placed over a portion of the face on Thursday and Friday. This disrupted the flow of collection vehicles and created significant queuing.

6. During both the fall and spring sorting events, project team members observed at least one specific rear packer arriving everyday; its entire load consisted of yard waste disposed in composting bags (see Photo 5.1). When the vehicle driver was interviewed (during the vehicle survey process), he indicated that the waste was collected in Missouri. In addition to this load, yard waste was also found in a number of loads from both Kansas and Missouri. The yard waste was found most frequently in residential loads and it was in plastic bags. Some of the waste was loose; however, this appeared to be in commercial loads that were collected from dumpsters or bins or from residential loads where cans and carts were collected.

A survey of vehicles delivering waste to the working face of this landfill was undertaken as a part of the data gathering activities conducted during the two seasonal waste sorts. The number of vehicles delivering waste generated in Kansas (60.73%) and the amount of waste generated in Kansas (59.35%) are very comparable. This is also true for the number of vehicles delivering waste generated in Missouri (38.35%) and the amount of waste generated in Missouri (39.72%) as
well as the number of vehicles delivering waste generated in both states (0.91%) and the amount of waste generated in both states (0.93%).

A total of 132 loads of solid waste were selected for sampling during the fall and spring sorting events conducted at this facility. Of these 132 sampled loads, 67 were comprised of residential waste (50.8%), 63 were comprised of commercial waste (47.7%), and 2 was comprised of mixed waste (1.5%).

Data from the fall sorting event indicates that the paper fibers component is the largest part of the waste stream at this facility by weight (39.81%). However, the plastics component is the largest part of the waste stream by volume (37.10%), closely followed by the paper fibers component which is 35.77% of the waste stream by volume.

Data from the spring sorting event indicates that the paper fibers component is again the largest part of the waste stream at this facility by weight (42.49%). The plastics component is the largest part of the waste stream by volume (38.83%) and it is again closely followed by the paper fibers component which is 38.28% of the waste stream by volume.

When the data from the fall and spring sorting events is combined, the results are not much different than those for the individual seasonal sorting events. Paper fibers is the largest component of the waste stream by weight (41.34%) and plastics is the largest component of the waste stream by volume (38.08%).
Food is a significant part of the waste stream by weight – 15.21% in the fall; 16.85% in the spring; and 16.15% for the fall and spring combined. However, food is not a significant part of the waste stream by volume. In the fall, it comprised only 4.11% of the waste stream by volume; in the spring it comprised 4.58% of the waste stream by volume; and for fall and spring combined it comprised 4.38% of the waste stream by volume.

During the fall sorting event, yard waste accounted for 10.41% of the waste stream by weight and 5.11% of the waste stream by volume. During the spring sorting event, yard waste accounted for 9.40% of the waste stream by weight and 4.65% of the waste stream by volume.

Two other material categories merit mention. Corrugated paper accounted for 10.21% of this waste stream by weight and 6.62% of this waste stream by volume during the fall sorting event. During the spring sorting event, corrugated paper accounted for 11.93% of the waste stream by weight and 7.79% of the waste stream by volume. Office paper accounted for 5.81% of the waste stream by weight and 6.26% of this waste stream by volume during the fall sorting event. During the
spring sorting event, office paper accounted for 7.25% of the waste stream by weight and 7.87% of this waste stream by volume.

During the visual inspection of the sampled loads undertaken at the Johnson County Landfill, a total of 8 different electronic items were identified. Of the electronic items identified, the most frequently sighted items were CPUs, keyboards, monitors, and TVs. A total of 28 different large items were identified during the fall and spring sorting events at the Johnson County Landfill. Of these large items, the three most frequently identified items were lumber, carpet, and wood furniture.

The residential, commercial, and mixed waste streams at the Johnson County Landfill were analyzed and compared. The following bar chart presents this comparison.
Kansas County Waste Stream

A total of 176 samples were captured at the Olathe Transfer Station and the Johnson County Landfill during the fall and spring (combined) sorting events. Of these 176 samples, 123 samples (69.89%) contained waste generated in Kansas. During the fall sorting event, 59 Kansas samples were captured; during the spring sorting event, 64 Kansas samples were captured. For purposes of this study, the 123 samples that contained waste generated in Kansas will be referred to as the Kansas waste stream.

Data from the fall sorting event indicates that the paper fibers component is the largest part of the Johnson County waste stream by weight (41.37%) and by volume (37.77%). Data from the spring sorting event indicates that the paper fibers component is again the largest part of the Johnson County waste stream by weight (41.34%). However, the plastics component is the largest part of this waste stream by volume (38.11%), closely followed by the paper fibers component which is 37.32% of the waste stream by volume.

When the data from the fall and spring sorting events is combined, the results are not much different than those for the individual seasonal sorting events. Paper fibers is the largest component of this waste stream by weight (41.35%) and paper fibers and plastics are tied as the largest component of this waste stream by volume (37.80% and 37.81%, respectively).
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Food is a significant part of the Johnson County waste stream by weight – 14.67% in the fall; 16.69% in the spring; and 15.84% for fall and spring combined. However, food is not a significant part of this waste stream by volume. In the fall, it comprised only 4.10% of the waste stream by volume; in the spring it comprised 4.63% of the waste stream by volume; and for fall and spring combined it comprised 4.41% of the waste stream by volume.

During the fall sorting event, yard waste accounted for 11.69% of the Johnson County waste stream by weight and 5.94% of the waste stream by volume. During the spring sorting event, yard waste accounted for 11.01% of this waste stream by weight and 5.55% of the waste stream by volume.

One other material category merits mention. Corrugated paper accounted for 12.29% of the Johnson County waste stream by weight during the fall sorting event and 8.24% of this waste stream by volume. During the spring sorting event, corrugated paper accounted for 11.45% of the Johnson County waste stream by weight and 7.61% of the waste stream by volume.
The Wyandotte County data indicate that the paper fibers component comprises the largest part of the waste stream by weight (28.94%). The paper fibers component is followed by food which comprises 18.18% of the waste stream by weight and the textiles/rubber/leather material category which comprises 15.77% of the waste stream by weight.

However, the largest part of the Wyandotte County waste stream by volume is the plastics component at 39.84%. The plastics component is followed by the paper fibers component which accounts for 24.42% of the waste stream by volume and the textiles/rubber/leather material category which comprises 19.71% of the waste stream by volume. The food material category only accounts for 4.62% of the waste stream by volume.

Yard waste does not appear to be a significant part of the Wyandotte County waste stream. It comprises 8.84% of the waste stream by weight and only 4.09% of the waste stream by volume.
The Johnson County waste stream and the Wyandotte County waste stream were analyzed and compared. The following bar chart presents this comparison.

Missouri Waste Stream

A total of 176 samples were captured at the Olathe Transfer Station and the Johnson County Landfill during the fall and spring (combined) sorting events. Of these 176 samples, 53 samples (30.11%) contained waste generated in Missouri. During the fall sorting event, 24 Missouri samples were captured; during the spring sorting event, 29 Missouri samples were captured.

For purposes of this study, the 53 samples that contained waste generated in Missouri will be referred to as the Missouri waste stream. In addition, the Missouri waste stream is further subdivided into four distinct sample groups: (1) the first group encompasses 35 samples that contained waste generated in Jackson County; (2) this group consists of 9 samples that contained waste generated in Clay County; (3) this group consists of 5 samples that contained waste generated in Platte County; and (4) the final group consists of 4 samples of waste generated in Cass County. It is important to note that all of the four groups encompass small sample
sets. The information from these sample sets can be used for comparison purposes; however, it is not a statistically valid representation of the waste stream for any of these four Missouri counties.

Three components (comprised of 12 material categories total) and ten additional material categories comprise the waste stream profile for this study. The three components of the waste stream are paper fibers, plastics, and metals.

The Jackson County data indicate that the paper fibers component comprises the largest part of the waste stream by weight (41.36%). The paper fibers component is followed by food which comprises 17.93% of the waste stream by weight and the plastics component which comprises 15.40% of the waste stream by weight. However, the largest part of the Jackson County waste stream by volume is the plastics component at 41.31%. The plastics component is followed by the paper fibers component which accounts for 35.66% of the waste stream by volume and the textiles/rubber/leather material category which comprises 8.40% of the waste stream by volume. The food material category only accounts for 4.63% of the waste stream by volume.

Yard waste does not appear to be a significant part of the Jackson County waste stream. It comprises 6.09% of the waste stream by weight and only 2.86% of the waste stream by volume. Interestingly, the corrugated paper material category accounts for 10.57% of the Jackson County waste stream by weight and 6.55% of the waste stream by volume.
The Clay County data indicate that the paper fibers component comprises the largest part of the waste stream by weight (42.70%). The paper fibers component is followed by food which comprises 15.30% of the waste stream by weight and the plastics component which comprises 14.53% of the waste stream by weight.

However, the largest part of the Clay County waste stream by volume is the plastics component at 40.36%. The plastics component is followed by the paper fibers component which accounts for 36.93% of the waste stream by volume. The food material category only accounts for 4.07% of the waste stream by volume.
Yard waste does not appear to be a significant part of the Clay County waste stream. It comprises 5.43% of the waste stream by weight and only 2.62% of the waste stream by volume. The other paper material category comprises 13.65% of the waste stream by weight and the corrugated paper material category accounts for 12.61% of the Clay County waste stream by weight. In turn, the film and bags material category accounts for 15.91% of the waste stream by volume and the other paper material category comprises 13.34% of the Clay County waste stream by volume. Corrugated paper accounts for only 8.04% of the Clay County waste stream by volume.

The Platte County data indicate that the paper fibers component comprises the largest part of the waste stream by weight (41.51%). The paper fibers component is followed by food which comprises 17.21% of the waste stream by weight and the plastics component which comprises 17.04% of the waste stream by weight.
However, the largest part of the Platte County waste stream by volume is the plastics component at 44.08%. The plastics component is followed by the paper fibers component which accounts for 36.51% of the waste stream by volume. The food material category accounts for only 4.50% of the waste stream by volume.

Yard waste does not appear to be a significant part of the Platte County waste stream. It comprises 2.86% of the waste stream by weight and only 1.36% of the waste stream by volume. The other paper material category comprises 12.31% of the waste stream by weight. However, by volume, other plastics material category accounts for 19.67% of the waste stream and the other paper material category comprises 11.83% of the Platte County waste stream.
The Cass County data indicate that the paper fibers component comprises the largest part of the waste stream by weight (57.90%). The office paper material category is the largest segment of the paper fibers component. It comprises 42.16% of the weight of the paper fibers component and 24.41% of the weight of the entire Cass County waste stream. Corrugated paper and other paper are also large segments of the paper fibers component. Corrugated paper comprises 24.82% of the weight of the paper fibers component and 14.37% of the weight of the Cass County waste stream. Other paper closely follows corrugated paper accounting for 22.14% of the weight of the paper fibers component and 12.82% of the weight of the Cass County waste stream.

When the material categories that comprise the paper fibers component are excluded, food is the next largest segment of the waste stream; it accounts for only 10.79% of the waste stream by weight. The plastics component and the textiles/rubber/leather material category closely follow food; they account for 10.67% and 10.40% of the weight of the waste stream, respectively.
The largest part of the Cass County waste stream by volume is also the paper fibers component at 50.44%. The plastics component is the next largest part of the Cass County waste stream by volume at 28.38%. Again, the office paper material category is the largest part of the paper fibers component. It comprises 48.66% of the weight of the paper fibers component and 24.54% of the weight of the entire Cass County waste stream. The food material category accounts for only 2.72% of the waste stream by volume. While, the textiles/rubber/leather material category comprises 12.89% of the waste stream by volume.

Yard waste is not a significant part of the Cass County waste stream as sampled during the fall and spring sorting events. It comprises 2.64% of the waste stream by weight and only 1.21% of the waste stream by volume.

The Jackson County, Clay County, Platte County, and Cass County waste streams were analyzed and compared. The following bar chart presents this comparison.
Three components (comprised of 12 material categories total) and ten additional material categories comprise the waste stream profile for this study. The three components of the Missouri waste stream are paper fibers, plastics, and metals. Together, these three components comprise more than 60% of the Missouri waste stream.

Data from the fall sorting event indicates that the paper fibers component is the largest part of the Missouri waste stream by weight (42.23%). By volume, the plastics component is the largest (40.26%), closely followed by the paper fibers component at 36.26%. Data from the spring sorting event indicates that the paper fibers component is again the largest part of the Missouri waste stream by weight (43.14%). However, the plastics component is the largest part of this waste stream by volume at 40.73%.

When the data from the fall and spring sorting events is combined, the results are not much different than those for the individual seasonal sorting events. Paper fibers is the largest component of this waste stream by weight (42.74%). The plastics component is the largest part of the Missouri waste stream by volume (40.52%).
Food is a significant part of the Missouri waste stream by weight – 16.14% in the fall; 17.57% in the spring; and 16.93% for fall and spring combined. However, food is not a significant part of this waste stream by volume. In the fall, it comprised only 4.14% of the waste stream by volume; in the spring it comprised 4.60% of the waste stream by volume; and for fall and spring combined it comprised 4.39% of the waste stream by volume.

During the fall sorting event, yard waste accounted for 5.08% of the Missouri waste stream by weight and 2.37% of the waste stream by volume. During the spring sorting event, yard waste accounted for 5.69% of this waste stream by weight and 2.71% of the waste stream by volume.

The residential, commercial, and mixed waste streams for waste generated in Missouri were analyzed and compared. The following bar chart presents this comparison.
**Kansas-Missouri Waste Stream**

A total of 176 samples were captured at the Olathe Transfer Station and the Johnson County Landfill during the fall and spring (combined) sorting events. Of these 176 samples, 115 samples (65.34%) contained waste generated in Johnson County, Kansas. An additional 8 samples (4.55%) contained waste generated in Wyandotte County and Leavenworth County, Kansas. Waste generated in Missouri accounted for 53 (30.11%) of these 176 samples (4 samples from Cass County, 5 samples from Platte County, 9 samples from Clay County, and 35 samples from Jackson County.

The Johnson County waste stream and the Missouri waste stream were analyzed and compared. The following bar chart presents this comparison.
A total of 176 samples were captured at the Olathe Transfer Station and the Johnson County Landfill during the fall and spring (combined) sorting events. Of these 176 samples, 123 samples (69.89%) contained waste generated in Kansas (115 samples from Johnson County and 8 samples from other Kansas counties). Waste generated in Missouri accounted for 53 (30.11%) of these 176 samples. For purposes of this study, all of the captured samples (176) will be referred to as the Kansas-Missouri waste stream.

Three components (comprised of 12 material categories total) and ten additional material categories comprise the waste stream profile for this study. These three components are paper fibers, plastics, and metals. Together, these three components comprise slightly more than 58% of the Kansas-Missouri waste stream.

Data from the fall sorting event indicates that the paper fibers component is the largest part of the Kansas-Missouri waste stream by weight (40.55%). By volume, the plastics component is the largest (38.42%), closely followed by the paper fibers component at 36.19%. Data from the spring sorting event indicates that the paper fibers component is again the largest part of the Kansas-Missouri waste stream by weight (41.89%). However, the plastics component is the largest part of this waste stream by volume at 38.95%.

When the data from the fall and spring sorting events is combined, the results are not much different than those for the individual seasonal sorting events. Paper fibers is the largest component of this waste stream by weight (41.28%). The plastics component is the largest part of the Kansas-Missouri waste stream by volume (38.71%).
Food is a significant part of the Kansas-Missouri waste stream by weight – 15.82% in the fall; 16.96% in the spring; and 16.44% for fall and spring combined. However, food is not a significant part of this waste stream by volume. In the fall, it comprised only 4.28% of the waste stream by volume; in the spring it comprised 4.62% of the waste stream by volume; and for fall and spring combined it comprised 4.47% of the waste stream by volume.

During the fall sorting event, yard waste accounted for 9.34% of the Kansas-Missouri waste stream by weight and 4.60% of the waste stream by volume. During the spring sorting event, yard waste accounted for 9.38% of this waste stream by weight and 4.64% of the waste stream by volume.

One other material category merits mention. During the fall sorting event, the textiles/rubber/leather material category accounted for 6.57% of the Kansas-Missouri waste stream by weight and 8.74% of this waste stream by volume. The textiles/rubber/leather material category accounted for 5.23% of the Kansas-Missouri waste stream by weight during the spring sorting event and 6.99% of this waste stream by volume.
Residential, commercial, and mixed wastes for the Kansas-Missouri waste stream were analyzed and compared. The following bar chart presents this comparison.

Pure Commercial Loads

A total of 47 pure commercial loads were sampled during the two sampling events at the Johnson County Landfill and the Olathe Transfer Station. A pure commercial load contains only solid waste generated by retail businesses, offices, schools, nursing homes or medical centers, or a combination of these generators. Pure commercial loads were analyzed for the Johnson County waste stream, the Missouri waste stream, and the Kansas-Missouri waste stream.

When assessing the percentages for the combined two-season waste sort for pure commercial loads in the Johnson County waste stream, paper fibers accounted for more than 50% of the weight of this waste stream. More importantly, the amount of corrugated paper and office paper is significant. Together, these two materials comprised more than 55% of the paper fibers component of this waste stream by weight and almost 30% of the adjusted sorted sample weight of this waste stream.
In turn, newspaper and magazines accounted for less than 10% of the paper fibers component of this waste stream by weight and less than 5% of the adjusted sorted sample weight of this waste stream.

Comparing the pure commercial loads sampled to all of the loads sampled during the combined two-season waste sort, the difference in percentages is significant. Paper fibers accounted for 41.87% of all the loads sampled and 51.26% of the pure commercial loads in the Johnson County waste stream. Plastics are slightly higher in Johnson County pure commercial loads as compared to all the loads sampled. When assessing the 7 material categories that are not included in one of the three components, all of the categories except food are higher in all of the sampled loads as compared to the Johnson County pure commercial loads. The food material category is 3.57% higher in the Johnson County pure commercial loads as compared to all of the sampled loads.

In considering the paper fibers component separately, there is a significant difference in every material category of this component, except newspaper and magazines, when the Johnson County pure commercial loads are compared to all of the sampled loads. The most significant differences occurred in corrugated paper (the Johnson County pure commercial loads were 9.23% higher), office paper (the Johnson County pure commercial loads were 2.74% higher), and other paper (the Johnson County pure commercial loads were 1.74% higher).

A total of 22 pure commercial loads were sampled from waste collected in Missouri and delivered to the Johnson County Landfill. When assessing the percentages for the combined two-season waste sort for pure commercial loads in the Missouri waste stream, paper fibers accounted for almost 50% of the weight of this waste stream. More importantly, the amount of corrugated paper and office paper is significant. Together, these two materials comprised more than 50% of the paper fibers component of this waste stream by weight and more than 25% of the adjusted sorted sample weight of this waste stream. In turn, newspaper accounted for less than 6% of the paper fibers component of this waste stream by weight and less than 3% of the adjusted sorted sample weight of this waste stream.

Comparing the pure commercial loads sampled to all of the loads sampled during the combined two-season waste sort, the difference in percentages is somewhat significant. Paper fibers accounted for 41.87% of all the loads sampled and 49.39% of the pure commercial loads in the Missouri waste stream. Plastics are also higher in the Missouri pure commercial loads as compared to all the loads.
sampled. The only other category that is significantly higher in the Missouri waste stream as compared to all of the sampled loads is food.

In considering the paper fibers component separately, there is a significant difference in the corrugated paper and office paper categories of this component when the Missouri pure commercial loads are compared to all of the sampled loads. Corrugated paper in the Missouri pure commercial loads was 6.02% higher when compared to all of the sampled loads and office paper in Missouri pure commercial loads was 2.94% higher.

Further evaluation of the comparison between the Missouri pure commercial loads and all of the loads indicates that the greatest impact is in the paper component (Missouri pure commercial loads are 7.52% higher), yard waste (Missouri pure commercial loads are 4.52% lower), and the textile category (Missouri pure commercial loads are 1.17% lower). The food and plastics categories present a lesser impact. The Missouri pure commercial loads are 1.50% higher in the food category than all of the sampled loads and the plastics category is 0.88% higher.

A total of 47 pure commercial loads were sampled from waste generated in Kansas and Missouri and delivered to the Johnson County Landfill and Olathe Transfer Station. The pure commercial loads include 24 loads of waste generated in Johnson County, Kansas, 1 load of waste generated in Leavenworth County, Kansas, and 22 loads of waste generated in Missouri.

When assessing the percentages for the combined two-season waste sort for pure commercial loads in the Kansas-Missouri waste stream, paper fibers accounted for 50% of the weight of this waste stream. More importantly, the amount of corrugated paper, office paper, and other paper is significant. Together, these three materials comprised slightly more than 88% of the paper fibers component of this waste stream by weight and more than 40% of the adjusted sorted sample weight of this waste stream.

Comparing the pure commercial loads sampled to all of the loads sampled during the combined two-season waste sort, the difference in percentages is significant. Paper fibers accounted for 41.87% of all the loads sampled and 50.00% of the pure commercial loads in the Kansas-Missouri waste stream. Plastics are slightly higher in the Kansas-Missouri pure commercial loads as compared to all the loads sampled. When assessing the 7 material categories that are not included in one of the three components, all of the categories – except food – are higher in all of the sampled loads as compared to the Kansas-Missouri pure commercial loads. The food
material category is 3.23% higher in the Kansas-Missouri pure commercial loads as compared to all of the sampled loads.

In considering the paper fibers component separately, there is a significant difference in every material category of this component, except newspaper and magazines, when the Kansas-Missouri pure commercial loads are compared to all of the sampled loads. The most significant differences occurred in corrugated paper (the Kansas-Missouri pure commercial loads were 5.89% higher), office paper (the Kansas-Missouri pure commercial loads were 4.24% higher), and other paper (the Kansas-Missouri pure commercial loads were 1.13% higher).

Further evaluation of the comparison between the Kansas-Missouri pure commercial loads and all of the loads indicates that the greatest impact is in the paper component (Kansas-Missouri pure commercial loads are 8.13% higher), food (Kansas-Missouri pure commercial loads are 3.23% higher), yard waste (Kansas-Missouri pure commercial loads are 6.65% lower), and the textile category (Kansas-Missouri pure commercial loads are 1.74% lower). The plastics component presents a lesser impact. The Kansas-Missouri pure commercial loads are 0.83% higher than all of the sampled loads. Although the pure commercial loads accounted for only 47 of the 176 loads sampled, their impact is significant in selected categories.

Based on these results waste reduction efforts in the commercial sector of the waste stream should concentrate on corrugated paper, office paper, and other paper. Corrugated paper is likely generated in all sub-sectors of the commercial waste stream (retail, businesses, schools, etc.). The office paper portion is likely generated by businesses other than retail stores. Utilizing information gathered during interviews with the vehicle drivers for those loads that contained waste generated in schools (19 of the 47 pure commercial loads), it appears that a large percentage of the waste in this sub-sector is office paper and other paper.

Other paper appears to be generated from retail businesses (restaurants, convenience stores, etc.). Another contributor to other paper is nursing homes. As this analysis demonstrates, pure commercial loads in the Kansas-Missouri waste stream have higher paper content, relatively high food content, and a lower yard waste and textiles content.

Another interesting consideration is the difference in pure commercial loads from Missouri when compared to those from Johnson County. The pure commercial loads sampled from Missouri showed an increase in almost all of the paper categories, while the increase in the paper categories for the Johnson County pure
commercial loads was more dramatic and occurred in only three paper component material categories (corrugated paper, office paper, and other paper). This may signal a greater waste reduction focus on a few select categories in Johnson County, while in Missouri the waste reduction focus may be broader.

**Residential Waste**

A total of 95 residential loads were sampled during the two sampling events at the Johnson County Landfill and the Olathe Transfer Station. Of these 95 loads, 71 contained waste generated in Johnson County; 19 contained waste generated in Missouri; the remaining 5 loads contained waste generated in other Kansas counties in the Kansas City metropolitan area. The 95 residential loads were analyzed for the Johnson County waste stream, the Missouri waste stream, and the Kansas-Missouri waste stream.

When assessing the percentages for the combined two-season waste sort for residential loads in the Johnson County waste stream, paper fibers accounted for more than 35% of the weight of this waste stream. More importantly, the amount of other paper is significant (almost 38% of the paper fibers component and more than 13% of the net weight of the adjusted sorted sample). Although not as significant as other paper, the amount of newspaper, magazines, and corrugated paper is a major portion of the waste stream. Together, these three materials comprised slightly more than 50% of the paper fibers component of this waste stream by weight and more than 18% of the adjusted sorted sample weight of this waste stream. In addition to the paper fibers component of this residential waste stream, yard waste and food comprise more than 30% of the net weight of the adjusted sorted sample.

Comparing the Johnson County residential loads to all of the loads sampled during the combined two-season waste sort, the difference in percentages is significant in two material categories – corrugated paper and yard waste. Corrugated paper in the Johnson County residential loads was 4.23% lower as compared to all of the sampled loads. In contrast, yard waste in the Johnson County residential loads was 6.34% higher as compared to all of the sampled loads.

Paper fibers accounted for 41.87% of all the loads sampled and 36.46% of the residential loads in the Johnson County waste stream. Plastics are lower in the Johnson County residential loads as compared to all the loads sampled.
Further evaluation of the comparison between the Johnson County residential loads and all of the loads indicates that the greatest impact of residential loads is in the paper fibers component, the plastics component, and yard waste. Because the residential loads accounted for only 95 of the 176 loads sampled (53.98%), residential waste significantly impacts the other remaining waste stream.

A total of 19 residential loads were sampled from waste collected in Missouri and delivered to the Johnson County Landfill. When assessing the percentages for the combined two-season waste sort for residential loads in the Missouri waste stream, the paper fibers component, plastics component, and food accounted for almost 69% of the weight of this waste stream. More importantly, the percentage of yard waste in the Missouri residential loads is less than half of the percentage of yard waste in the Johnson County residential loads (7.28% vs. 15.83%).

Comparing the Missouri residential loads to all of the loads sampled during the combined two-season waste sort, the difference in percentages is interesting. Paper fibers accounted for 41.87% of all the loads sampled and 34.92% of the residential loads in the Missouri waste stream. The plastics component, metals component, glass category, food category, and textiles category are also higher in the Missouri residential loads as compared to all the loads sampled.

The difference in percentages is significant in two material categories – corrugated paper and yard waste. Corrugated paper in the Missouri residential loads was 4.53% lower as compared to all of the sampled loads. Yard waste in the Missouri residential loads was 2.22% lower as compared to all of the sampled loads.

Further evaluation of the comparison between the Missouri residential loads and all of the loads indicates that the greatest impact of residential loads is in the paper fibers component, and the glass, yard waste, food, and textile categories. Reduced paper fibers in the residential waste stream is somewhat expected. A reduction in the yard waste category in residential loads in the Missouri waste stream is also somewhat expected given the yard waste ban in Missouri. However, the increase in the glass, food and textile categories is not as easily explained; however, it may be the result of the limited number of samples.

A total of 95 residential loads were sampled from waste generated in Kansas and Missouri and delivered to the Johnson County Landfill and Olathe Transfer Station. The residential loads included 71 loads of waste generated in Johnson County, Kansas; 19 loads contained waste generated in Missouri; the remaining 5
loads contained waste generated in other Kansas counties in the Kansas City metropolitan area.

When assessing the percentages for the combined two-season waste sort for residential loads in the Kansas-Missouri waste stream the paper fibers component and plastics component together with the food and yard waste categories accounted for almost 80% of the weight of this waste stream. More importantly, the amount of other paper, food, and yard waste is significant. Together, these three materials comprised more than 44% of the adjusted sorted sample weight of this waste stream. Comparing the 95 residential loads sampled to all of the loads sampled during the combined two-season waste sort, the difference in percentages is less than 1% in all but three categories – corrugated paper, yard waste, and office paper. Corrugated paper and office paper were both lower in the Kansas-Missouri residential loads (4.39% and 2.45%, respectively). Yard waste in the Kansas-Missouri residential loads was 4.34% higher as compared to all of the sampled loads. The lower percentage of corrugated paper and office paper in the Kansas-Missouri residential loads explains the 6.25% difference in the paper fibers component of these loads as compared to the paper fibers component for all of the sampled loads. Based on this analysis, it appears that a broad waste reduction effort focused on all material categories would be most effective with an added emphasis on yard waste.

**Impact of Collection Vehicle**

A comparison of the type of vehicle utilized to collected residential waste that was delivered to the Johnson County Landfill and the Olathe Transfer Station was conducted. Of the 20 waste categories compared, 15 categories indicate less than a 1% difference between the waste collected via side loader and the waste collected via rear packer. Of the remaining 5 categories, 3 of the category percentages – corrugated paper, magazines, and food – were higher in the residential waste collected via side loader. Two of the percentages – the yard waste and textile categories – were higher in the residential waste collected via rear packer. The most significant percentage difference is in the residential yard waste collected via rear packer compared to the residential yard waste collected via side loader. Yard waste was more than 9% lower in the residential waste collected by side loaders than the residential waste collected by rear packers.
Statistical Analysis

This analysis addresses the determination of the 90% confidence level of the data. The analysis focused on three aspects of the database – fall sorting event, spring sorting event, and the fall and spring (combined) sorting events. This analysis also considered each of the sampling sites – the Johnson County Landfill, the City of Olathe Transfer Station, and the landfill and transfer station combined.

The 90% confidence level is first determined graphically for each seasonal sorting event at each facility and the combined site. For ease of analysis within the report, 8 of the 23 waste-material categories were randomly selected for this analysis. These categories are: (1) newspaper; (2) magazines; (3) HDPE #2; (4) tin; (5) glass; (6) food; (7) textiles/rubber/leather; and (8) yard waste. Each of these 8 categories for each of the sorting seasons at the two facilities and the combined sites was graphed. Chart 10.1 through Chart 10.48 present these graphs.

When these 8 waste-material categories were compared for the fall and spring sorting events at the Johnson County Landfill, the following observations were made:

1. The average number of outliers for all 8 categories for the fall sorting event was 3.75. This is 6.4% of the total number of samples sorted during the fall sorting event at the Johnson County Landfill.
2. The average number of outliers for all 8 categories for the spring sorting event was also 3.75. This is 5.1% of the total number of samples sorted during the spring sorting event at this facility.
3. All of the outliers were on the upper portion of the graph.
4. For the fall sort data and the spring sort data, there were slightly more samples below the mean than above the mean. The number of outliers and their proximity to the upper limit of the 90% confidence level directly impacted the number of samples below the mean.

When these 8 waste-material categories were compared for the fall and spring sorting events at the Olathe Transfer Station, the following observations were made:

1. The average number of outliers for all 8 categories for the fall sorting event was 1.5. This is 6.25% of the total number of samples sorted during the fall sorting event at the Olathe Transfer Station.
2. The average number of outliers for all 8 categories for the spring sorting event was also 1.75. This is 8.75% of the total number of samples sorted during the spring sorting event at this facility.
3. All of the outliers were on the upper portion of the graph.

4. For the fall sort data and the spring sort data, there were slightly more samples below the mean than above the mean. The number of outliers and their proximity to the upper limit of the 90% confidence level directly impacted the number of samples below the mean.

When these 8 waste-material categories were compared for the fall and spring sorting events at the Johnson County Landfill and Olathe Transfer Station (combined sites), the following observations were made:

1. The average number of outliers for all 8 categories for the fall sorting event was 5.25. This is 6.3% of the total number of samples sorted during the fall sorting event at both sites.

2. The average number of outliers for all 8 categories for the spring sorting event was also 6. This is 6.45% of the total number of samples sorted during the spring sorting event at both sites.

3. All of the outliers were on the upper portion of the graph.

4. For the fall sort data and the spring sort data, there were slightly more samples below the mean than above the mean. The number of outliers and their proximity to the upper limit of the 90% confidence level directly impacted the number of samples below the mean.

Utilizing the graphs and the analysis, it can be seen that for all of the waste categories analyzed the 90% confidence level is met. This can be seen in the limited number of outliers – less than 10% of all of the samples – the proximity of the samples to the mean, and the relationship between the outliers and the samples below the mean. It is also important to note that for each of the categories the spring sort results are well within 10% of their counterparts from the fall sort results.

**Johnson County, Kansas, and Missouri Study Comparisons**

A comparison of the results of this study to the statewide composite results from the most recent Kansas and Missouri waste characterization studies was conducted. For this study the data provided is for Johnson County waste stream only. The Kansas data is from the *State of Kansas Waste Characterization Study* (completed by Engineering Solutions & Design, Inc. and funded by the Kansas Department of Health and Environment, 2003). The Missouri data is from the...
Missouri Waste Composition Study, Municipal Solid Waste (completed by the Midwest Assistance Program, Inc. and funded by the Missouri Department of Natural Resources, 1996 and 1997). Based on this comparison the following conclusions were formulated.

1. The Johnson County waste stream has a higher percentage of paper than either the Kansas waste stream or the Missouri waste stream. This is likely because Johnson County is a very urban and it is not as influenced by rural areas. Both the Kansas and Missouri waste streams encompass rural waste.

2. The yard waste category in the Johnson County waste stream Johnson is higher than in the Kansas waste stream. This again reflects the more urban characteristics of Johnson County. It may also reflect the affluence of the county in relationship to the remainder of the state.

3. The textile category for the Kansas waste stream is much higher than either the Johnson County waste stream or the Missouri waste stream. Part of this is likely because of the composition of this category. Another possibility is that the Kansas study may reflect a more transient nature of the population, particularly in the western and rural parts of the state.

4. The food and plastic categories are higher in both the Johnson County waste stream and the Missouri waste stream when compared to the Kansas waste stream. A part of this may be a reflection of the age of the Missouri study. It could also be that both Missouri and Johnson County are much more urbanized, which could be reflected the demographics of both areas.

5. It is important to note that the age of the Kansas and Missouri studies as well as the methodology utilized to conduct both studies explains some of the variances among the studies. For example, although Engineering Solutions & Design, Inc. conducted both the Johnson County study and the Kansas study, the methodology utilized for each study was slightly different. When you combine difference with the age of each study (for example the Missouri study is ten years old), the ability to compare studies with a high degree of confidence is diminished. For this reason, the comparison of these three studies provides some interesting contrasts and commonalities; however, these comparisons must be tempered with a consideration to age and methodology.
APPENDIX G

PRODUCTS INCLUDED IN MATERIAL CATEGORIES
## Products Included in Material Categories

<table>
<thead>
<tr>
<th>Material Category</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspapers</td>
<td>Newspapers, including inserts</td>
</tr>
<tr>
<td>Office Papers</td>
<td>High-grade recyclable office papers, including computer printout, copy paper, stationery, etc.</td>
</tr>
<tr>
<td>Corrugated Boxes</td>
<td>Boxes, including corrugated inserts</td>
</tr>
<tr>
<td>Recyclable Mixed Papers</td>
<td>Magazines, mail (including catalogs), folding boxes</td>
</tr>
<tr>
<td>Other Papers</td>
<td>Directories, books, tissue, other paper and paperboard packaging, and miscellaneous papers</td>
</tr>
<tr>
<td>PET Soft Drink Bottles</td>
<td>Plastic PET soft drink bottles</td>
</tr>
<tr>
<td>HDPE Milk and Water Bottles</td>
<td>Plastic HDPE milk and water bottles</td>
</tr>
<tr>
<td>Other Plastics</td>
<td>Sacks and bags, other containers, other packaging, and miscellaneous items such as toys</td>
</tr>
<tr>
<td>Glass Containers</td>
<td>Glass bottles and jars</td>
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<tr>
<td>Steel Containers and Packaging</td>
<td>Steel (tin) cans, lids, and other miscellaneous packaging</td>
</tr>
<tr>
<td>Aluminum Containers and Packaging</td>
<td>Aluminum cans, foil, lids, and other miscellaneous packaging</td>
</tr>
<tr>
<td>Diapers</td>
<td>Infant and adult disposable diapers, including contents</td>
</tr>
<tr>
<td>Textiles, Shoes</td>
<td>Clothing, other textiles such as sheets, and footwear</td>
</tr>
<tr>
<td>Wood Pallets, etc.</td>
<td>Wood shipping pallets and crates</td>
</tr>
<tr>
<td>Food</td>
<td>Residential and commercial food wastes</td>
</tr>
<tr>
<td>Yard Wastes</td>
<td>Leaves, grass, and brush generated from ordinary yard and garden maintenance at residential and commercial establishments.</td>
</tr>
<tr>
<td>Durable Goods</td>
<td>Appliances, furniture, tires, and other bulky items</td>
</tr>
<tr>
<td>Other Miscellaneous</td>
<td>Dirt, kitty litter, etc.</td>
</tr>
</tbody>
</table>
APPENDIX H

JOHNSON COUNTY SOLID WASTE MANAGEMENT
COMMITTEE MEMBERS
### Johnson County Solid Waste Management Committee Members

Johnson County, Kansas  
Solid Waste Management Committee  
11811 S. Sunset Dr., Ste. 2700 Olathe, KS 66061  
913-715-6900

<table>
<thead>
<tr>
<th>Committee Member</th>
<th>Representation</th>
<th>Term Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Kent Seyfried</td>
<td>Cities, First Class</td>
<td>07/08/09</td>
</tr>
<tr>
<td>Ms. Cheryl Scott</td>
<td>Cities, First Class</td>
<td>07/08/10</td>
</tr>
<tr>
<td>Mr. Robert Tully</td>
<td>Cities, First Class</td>
<td>07/08/08</td>
</tr>
<tr>
<td>Dr. Gerard Miller (Gerry)</td>
<td>Cities, First Class</td>
<td>07/08/09</td>
</tr>
<tr>
<td>Ms. Ruth Hopkins Chairman</td>
<td>Cities, First Class</td>
<td>07/08/08</td>
</tr>
<tr>
<td>Dr. Robert Stutz</td>
<td>Cities, Second Class</td>
<td>07/08/09</td>
</tr>
<tr>
<td>Ms. Betty de Wit</td>
<td>Cities, Second Class</td>
<td>07/08/08</td>
</tr>
<tr>
<td>Mr. David Greene</td>
<td>Cities, Second Class</td>
<td>07/08/08</td>
</tr>
<tr>
<td>Mr. Thomas Stewart Vice-Chairman</td>
<td>Cities, Third Class</td>
<td>07/08/10</td>
</tr>
<tr>
<td>Mr. Floyd Danner</td>
<td>BOCC, Unincorporated Area</td>
<td>07/08/10</td>
</tr>
<tr>
<td>(Mr. Ike Mallula resigned 10/10/07)</td>
<td>BOCC, General Public</td>
<td>07/08/09</td>
</tr>
<tr>
<td>Mr. Tom Ireland</td>
<td>BOCC, Private Industry</td>
<td>07/08/09</td>
</tr>
<tr>
<td>Ms. C. Elaine Giessel</td>
<td>BOCC, Citizen Org.</td>
<td>07/08/08</td>
</tr>
<tr>
<td>Mr. Randy Alewine</td>
<td>BOCC, Private Solid Waste Ind.</td>
<td>07/08/10</td>
</tr>
<tr>
<td>Mr. Mike Clagett</td>
<td>BOCC, Private Scrap or Recycling</td>
<td>07/08/08</td>
</tr>
<tr>
<td>Mr. John Segale</td>
<td>Commissioner</td>
<td>District Board Liaison</td>
</tr>
<tr>
<td>Ms. Bernice Duletski Assistant County Manager</td>
<td>County Staff</td>
<td></td>
</tr>
<tr>
<td>Mr. John O’Neil Wastewater Administrator</td>
<td>john.o’<a href="mailto:neil@jocogov.org">neil@jocogov.org</a></td>
<td>County Staff</td>
</tr>
<tr>
<td>Ms. Cindy Kemper</td>
<td>Director, Environmental Department</td>
<td><a href="mailto:cindy.kemper@jocogov.org">cindy.kemper@jocogov.org</a></td>
</tr>
<tr>
<td>Ms. Betsy Betros Director, Pollution Control Division</td>
<td><a href="mailto:betsy.betros@jocogov.org">betsy.betros@jocogov.org</a></td>
<td>County Staff</td>
</tr>
<tr>
<td>Mr. Philip Askey</td>
<td>Environmental Specialist</td>
<td><a href="mailto:phil.askey@jocogov.org">phil.askey@jocogov.org</a></td>
</tr>
<tr>
<td>Ms Maureen Deeds Administrative Manager</td>
<td><a href="mailto:maureen.deeds@jocogov.org">maureen.deeds@jocogov.org</a></td>
<td>County Staff</td>
</tr>
</tbody>
</table>

Council of Mayors contact: City of Overland Park, 895-6000;  
Ms. Evalin McClain, Assistant City Manager; evalin.mcClain@opkansas.org  
10/05/07
APPENDIX I

JOHNSON COUNTY AD HOC SOLID WASTE MANAGEMENT STAKEHOLDERS GROUP PARTICIPANTS
## Johnson County Ad Hoc Solid Waste Management Stakeholders Group Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>City of</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brungardt, Michael</td>
<td>City Engineer</td>
<td>De Soto</td>
</tr>
<tr>
<td>Dillner, David</td>
<td>Manager/Administrator</td>
<td>Edgerton</td>
</tr>
<tr>
<td>Lambers, Scott</td>
<td>Manager/Administrator</td>
<td>Leawood</td>
</tr>
<tr>
<td>Shatto, Matt</td>
<td>Assistant City Administrator</td>
<td>Lenexa</td>
</tr>
<tr>
<td>Gay, Laura</td>
<td>Assistant City Administrator</td>
<td>Mission</td>
</tr>
<tr>
<td>Lee, Jennifer</td>
<td>Assistant City Administrator</td>
<td>Mission Hills</td>
</tr>
<tr>
<td>Roberts, Jonathan</td>
<td>Manager/Administrator</td>
<td>Spring Hill</td>
</tr>
<tr>
<td>Stutz, Bob</td>
<td>Solid Waste Management Committe</td>
<td>Fairway</td>
</tr>
<tr>
<td>Drovetta, Dave</td>
<td>City Councilmember</td>
<td>Gardner</td>
</tr>
<tr>
<td>Seiffert, Don</td>
<td>Director, Municipal Services</td>
<td>Olathe</td>
</tr>
<tr>
<td>Seyfried, Kent</td>
<td>Solid Waste Manager</td>
<td>Olathe</td>
</tr>
<tr>
<td>Twigg, Jim</td>
<td>Director, Health &amp; Environment</td>
<td>Overland Park</td>
</tr>
<tr>
<td>Hopkins, Ruth</td>
<td>City Councilmember</td>
<td>Prairie Village</td>
</tr>
<tr>
<td>Petrehn, Steve</td>
<td>Mayor</td>
<td>Roeland Park</td>
</tr>
<tr>
<td>Gonzales, Carol</td>
<td>Manager/Administrator</td>
<td>Shawnee</td>
</tr>
<tr>
<td>Stewart, Tom</td>
<td>Solid Waste Management Committe</td>
<td>Westwood Hills</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Other Organizations</th>
<th></th>
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</tr>
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<tbody>
<tr>
<td>Hodes, Nick</td>
<td>Trash Committee</td>
<td>Leawood Estates Homes Association</td>
</tr>
<tr>
<td>Alpert, Sam</td>
<td>Executive Director</td>
<td>Heartland Apartment Association</td>
</tr>
<tr>
<td>Mack, Kenneth</td>
<td>Solid Waste Prog.Coordinator</td>
<td>Wyandotte County Public Works Dept.</td>
</tr>
<tr>
<td>Danbury, Lisa</td>
<td>District Planner</td>
<td>MARC Solid Waste Management Dist.</td>
</tr>
<tr>
<td>Bider, Bill</td>
<td>Director</td>
<td>KDHE Bureau of Waste Management</td>
</tr>
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<td>Burke, Marty</td>
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<td>McLaughlin, Chet</td>
<td>Program Manager, ARTD Division</td>
<td>US EPA Region VII</td>
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<td>Chafin, Kevin</td>
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<td>Bridging The Gap</td>
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<td>Anderson, Kevin</td>
<td>Vice-President</td>
<td>Missouri Organic Recycling</td>
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<td>Akers, Bob</td>
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</tr>
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<td>Peseck, JR</td>
<td>Owner</td>
<td>Town &amp; Country Disposal</td>
</tr>
<tr>
<td>Holmes, Jim</td>
<td>Manager</td>
<td>Holland Corporation, Inc.</td>
</tr>
<tr>
<td>Sedlock, Charlie</td>
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<td>N.R. Hamm Quarry, Inc.</td>
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<tr>
<td>Coffman, Tom</td>
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<td>Deffenbaugh Industries</td>
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</tr>
<tr>
<td>Reardon, TJ</td>
<td>President</td>
<td>Aware, Inc.</td>
</tr>
<tr>
<td>Schrobilgen, Steve</td>
<td>Market Manager</td>
<td>Walmart/Sam’s Club</td>
</tr>
<tr>
<td>Segale, John</td>
<td>Commissioner</td>
<td>Board of County Commissioners</td>
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### Johnson County Ad Hoc Solid Waste Management Stakeholders Group Participants (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Stanton, Chris</td>
<td>Chief Estimator</td>
<td>McCown Gordon Construction, LLC</td>
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<tr>
<td>Perry, Phil</td>
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<td>Home Builders Assoc. of Greater KC</td>
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<td>Holtwick, Dave</td>
<td>Staff VP-KS Gov Affairs</td>
<td>Home Builders Assoc. of Greater KC</td>
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<td>Chappell, Alan</td>
<td>Environmental Engineer</td>
<td>MO Organic Recycling &amp; Env. Concepts and Design</td>
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<tr>
<td>Pierson, Bob</td>
<td>Treasurer</td>
<td>Prairie Village Environmental Committee</td>
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<td>Prouty, Jean</td>
<td>President</td>
<td>Blue Valley Riding Homeowners Ass'n</td>
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<td>Walston, Carl</td>
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<td>Falcon Valley Homeowners Ass'n</td>
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<td>Wilcoxon, Toby</td>
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<td>Seyfried, Kent</td>
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<td>Hopkins, Ruth</td>
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<td>Stutz, Bob</td>
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<td>Solid Waste Management Committee</td>
</tr>
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<td>de Wit, Betty</td>
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<td>Greene, David</td>
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<td>Stewart, Tom</td>
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<td>Danner, Floyd</td>
<td>BOCC, Unincorp. Area</td>
<td>Solid Waste Management Committee</td>
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<td>Mallula, Ike</td>
<td>BOCC, General Public</td>
<td>Solid Waste Management Committee</td>
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<td>Ireland, Tom</td>
<td>BOCC, Private Industry</td>
<td>Solid Waste Management Committee</td>
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<td>Giessel, Elaine</td>
<td>BOCC Citizen Organization</td>
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<td>Alewine, Randy</td>
<td>BOCC, Private Solid Waste Industry</td>
<td>Solid Waste Management Committee</td>
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<td>Clagett, Mike</td>
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<td>Solid Waste Management Committee</td>
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APPENDIX J

JOHNSON COUNTY AD HOC SOLID WASTE
STAKEHOLDER GROUP PRESENTATIONS

Disclaimer: Some of the information shown in the following presentations to the Ad Hoc Solid Waste Stakeholders Group represent preliminary data available at the time of presentation and may not be consistent with final data presented in the body of the final Solid Waste Management Plan, 2007 Edition.
Appendix J

Johnson County Ad Hoc Solid Waste Stakeholder Group Presentations

Johnson County Solid Waste Stakeholders Group

Cindy Kemper, Director
Environmental Department
March 27, 2007

Why are we here?

- Johnson County needs a new Solid Waste Management Plan

Under KS Law . . .

- Counties are generally responsible for solid waste planning . . .
  - Through a Solid Waste Management Committee . . .
  - That develops a Solid Waste Management Plan . . .
    - Adopted by the Board of County Commissioners

Solid Waste Management Plan . . .

- Must provide for proper storage, collection, transportation, processing & disposal of all solid waste generated in the County for at least 10 years in the future
- Must provide for waste reduction
- Must be updated annually
- Must be comprehensively reviewed every 5 years & revised as needed

Johnson County Plan . . .

- First adopted - 1972
- Comprehensively revised - 1996
- 2001 revisions were minor
- Contains a 20-year horizon

Johnson County Plan . . .

- 5-year revision due in 2007
- New Plan will look out to 2027
- Sounds like a long time, right?
Appendix J  Johnson County Ad Hoc Solid Waste Stakeholder Group Presentations

Why a new Plan now?

- Johnson County home to largest landfill in KS
- Privately owned & operated by Deffenbaugh Industries
- 51% of trash disposed in KS goes to Johnson County Landfill

Why a new Plan now?

- Landfill took 1.8 million tons of trash in 2006, 92% more than in 1995
- At least 40% of trash going to Landfill comes from MO
- Largest regional landfill by far

Why a new Plan now?

- Johnson County Landfill will close no later than 2027 under agreement with the City of Shawnee
- No new municipal solid waste landfills are currently being planned in the metropolitan area
- It takes 10-15 years to plan a new landfill

Disposal Rates at Johnson County Landfill

Tons and tons of trash

Planning Process

- Solid Waste Management Committee responsible for developing Plan
- Board of County Commissioners responsible for adopting Plan
- BOCC and Committee desire broader input in the Plan development process

What will we do with all that trash after the Landfill closes?
Goal for Stakeholders Group

- To provide feedback on—
  - Current solid waste management system including positive experiences as well as concerns and perceived or real obstacles.
  - Ideas and vision for the future of solid waste management in the County.

For more information... 

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(913) 715-6900
Current Solid Waste Management System in Johnson County

Stakeholders Group
March 27, 2007

Johnson County Demographics

- 501,000 residents (2005)
- 19 cities (excludes Bonner Springs)
- 97% live in cities
- By 2030, 800,000 people (68% increase)
- Over next 30 years, Johnson County is projected to capture 46% of all new jobs, 46% of new households, & 53% of new residents in region.

Under Current Solid Waste Management Plan . . .

- Cities generally responsible for waste & recyclables storage, collection/hauling, & litter control within city limits
- County generally responsible for disposal county-wide & litter control outside city boundaries
- County provides household hazardous waste (HHW) drop-off
- Olathe is the exception with city-owned collection, composting & HHW

Under Current Solid Waste Management Plan . . .

- Solid waste service levels, delivery methods & costs vary widely across cities and often within cities

Solid Waste Services

- Everyone in the County has access to curbside trash pick-up services
- Residential trash rates vary between $6.54 & $21.00 per household per month (weighted average is $10.84)
- 9 cities contract directly for trash service or provide it themselves
- 9 cities depend on homeowners associations or individual residents

Solid Waste Services

- 14 cities provide for residential curbside recycling (out of 19)
- Rates vary from $1.60 to $2.85 per household per month
- Residents in most cities have access to “free” recycling drop off locations (materials accepted vary)
- Residents in 6 cities (or parts of cities) have access to curbside yard waste pick-up for mulching/composting
Solid Waste Services - Unknown

- Trash collection & recycling at businesses & commercial buildings
- Recycling at public events

Solid Waste by the Numbers . . .

- Based on data from Olathe (and assuming Olathe is typical), each person in Johnson County generates 6.75 pounds of municipal solid waste per day
- About 1,700 tons of municipal solid waste generated in Johnson County per day, or 620,000 tons per year
- County recycling and disposal rates - still being developed

Types of Solid Waste

- Municipal solid waste (MSW) – garbage, refuse and other discarded materials, including food and yard waste, primarily from domestic activities (includes commercial waste similar to domestic)
- Construction & demolition waste (C&D) – solid waste such as bricks, concrete, soil, rock, wood, and drywall, resulting from construction, remodeling, repair & demolition
- Household hazardous waste (HHW) – consumer products from households, such as solvents, cleaners, and pesticides, that when discarded exhibit hazardous characteristics

Current Waste Management Infrastructure - MSW Landfills

- 1 MSW landfill in Johnson County
- 3 MSW landfills in 8 county Kansas City region
- 7 MSW landfills within 60 miles of Johnson County

Current Waste Management Infrastructure - C&D Landfills

- 7 C&D landfills in Johnson County
- 8 C&D landfills in 8 county Kansas City region

Current Waste Management Infrastructure - Haulers

- About 10 primary MSW haulers serve Johnson County
- Most Johnson County MSW is hauled by Deffenbaugh Industries

### MSW Landfills Within 60 miles of Johnson County

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Tons per Year (2005)</th>
<th>Life in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnson County Landfill</td>
<td>Shawnee, KS</td>
<td>1,776,500</td>
<td>20</td>
</tr>
<tr>
<td>Rolling Meadows Landfill</td>
<td>Topeka, KS</td>
<td>484,500</td>
<td>60</td>
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<tr>
<td>Hamm Quarry Landfill</td>
<td>Perry, KS</td>
<td>433,800</td>
<td>75+</td>
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<tr>
<td>Courtney-Ridge Landfill</td>
<td>Sugar Creek, MO</td>
<td>409,884</td>
<td>15-20</td>
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<td>Forest View Landfill</td>
<td>Kansas City, KS</td>
<td>370,500</td>
<td>0 (closed 12/06)</td>
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<td>Show-Me-Regional Landfill</td>
<td>Warrensburg, MO</td>
<td>137,917</td>
<td>25+</td>
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<tr>
<td>Lee’s Summit Landfill</td>
<td>Lee’s Summit, MO</td>
<td>84,647</td>
<td>7</td>
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<tr>
<td><strong>Total Tons per Year</strong></td>
<td></td>
<td><strong>3,803,794</strong></td>
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</table>

### C&D Landfills in Kansas City Region (With Waste Volumes Greater than 10,000 tons/day)

<table>
<thead>
<tr>
<th>Landfill</th>
<th>Location</th>
<th>Tons per Year (2005)</th>
<th>Life in Years</th>
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</thead>
<tbody>
<tr>
<td>Johnson County (Deffenbaugh)</td>
<td>Shawnee, KS</td>
<td>194,700</td>
<td>5</td>
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<tr>
<td>APAC-Reno</td>
<td>Olathe, KS</td>
<td>115,400</td>
<td>12</td>
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<tr>
<td>O’Donnell &amp; Sons</td>
<td>Olathe, KS</td>
<td>104,300</td>
<td>10-15</td>
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<td>Holland Corp.</td>
<td>Olathe, KS</td>
<td>87,500</td>
<td>25</td>
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<td>Asphalt Sales</td>
<td>Olathe, KS</td>
<td>36,400</td>
<td>10-15</td>
</tr>
<tr>
<td>City of Olathe, City of Olathe, KS</td>
<td>Olathe, KS</td>
<td>10,700</td>
<td>5-10</td>
</tr>
<tr>
<td>Total Tons per Year</td>
<td></td>
<td><strong>549,050</strong></td>
<td></td>
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</table>
Current Waste Management Infrastructure - Material Recycling Facilities (MRFs)

- MRFs are facilities that sort, consolidate & market recyclables
- Most recyclables collected in Johnson County go to the full service Deffenbaugh MRF (located in Wyandotte County)
- Some recyclables collected in Johnson County go to 2 large paper recyclers located in MO
- 1 large scrap metal recycler serves region

Current Waste Management Infrastructure - Household Hazardous Waste (HHW) Facilities

- HHW facilities collect, sort, recycle, and properly dispose of unwanted household chemicals
- 1 HHW facility serving Johnson County
- 1 HHW facility serving Olathe

Current Solid Waste Management System Themes

- Primarily private sector driven
- Services and costs vary widely
- Most of the waste generated in the County is disposed in the County
- Much of the waste generated outside the County is disposed in the County
- Region’s solid waste future is tied to the County’s

For more information . . .

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betsy.betros@jocogov.org
phil.askey@jocogov.org
(913) 715-6900
Solid Waste Management System in Johnson County

Stakeholders Group
Waste Reduction
April 19, 2007

Why is Waste Reduction Important?

- Public demands it as the “right thing to do”
  - 93% of Johnson County residents feel recycling is important (Source: MARC survey)
- Creating habits today to mitigate future costs
- Creating the infrastructure today to meet future needs
- Conserves natural resources
  - In nature, nothing is wasted
  - Waste = Food
  “Up to 75 percent of trash in an average garbage can is recyclable, but typically only 32 percent gets recycled.”
  - U.S. Environmental Protection Agency
And...Kansas state law now requires county solid waste management plans address waste reduction

What Happens to our Waste when the Landfill Closes?

Solid Waste Disposed at Johnson County Landfill

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons of Solid Waste Disposed</th>
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<tr>
<td>1996</td>
<td>200,000</td>
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<tr>
<td>1997</td>
<td>400,000</td>
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<td>1998</td>
<td>600,000</td>
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<td>2001</td>
<td>1,200,000</td>
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<td>2002</td>
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<td>2003</td>
<td>1,600,000</td>
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<td>2004</td>
<td>1,800,000</td>
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<tr>
<td>2005</td>
<td>2,000,000</td>
</tr>
<tr>
<td>2027</td>
<td>Landfill will close no later than 2027</td>
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What are We Throwing Away?

In 2006 and 2007, Johnson County and the Mid-America Regional Council sponsored a waste sort at Johnson County disposal facilities.

Waste Sort at the Johnson County Landfill

<table>
<thead>
<tr>
<th>% by Weight</th>
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</thead>
<tbody>
<tr>
<td>Paper 40%</td>
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<tr>
<td>Wood 2%</td>
</tr>
<tr>
<td>Yard Waste 10%</td>
</tr>
<tr>
<td>Textiles/Rubber/Leather 8%</td>
</tr>
<tr>
<td>Food 15%</td>
</tr>
<tr>
<td>Diapers 3%</td>
</tr>
<tr>
<td>Metal 3%</td>
</tr>
<tr>
<td>Glass 4%</td>
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<tr>
<td>Plastic 13%</td>
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</table>

Results from 1 Residential Truck from Overland Park JCL Waste Sort October 2006

<table>
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<th>% by Weight</th>
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</thead>
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<tr>
<td>Paper 21%</td>
</tr>
<tr>
<td>Yard Waste 50%</td>
</tr>
<tr>
<td>Plastic 7%</td>
</tr>
<tr>
<td>Metal 2%</td>
</tr>
<tr>
<td>Glass 4%</td>
</tr>
<tr>
<td>Diapers 5%</td>
</tr>
<tr>
<td>Food 6%</td>
</tr>
<tr>
<td>Textile/Rubber/Leather 3%</td>
</tr>
</tbody>
</table>
**Approaches to Increase Waste Reduction**

- **Public education and awareness to encourage behavioral changes**
  - 72% of Johnson County residents have not seen or heard any promotional information about recycling during the past year. (Source: MARC survey)
  - Despite availability of curbside recycling, may need to increase education/awareness

- **Regulatory**
  - Missouri has implemented a landfill ban on yard waste
  - Olathe requires residents to separate yard waste from trash for composting

**Approaches to Increase Waste Reduction continued**

- **Regulatory/Contractual**
  - Curbside recycling – mandatory pay
  - Curbside recycling – mandatory participation

- **Financial incentives or disincentives**
  - Pay-as-you throw (PAYT)
    - KCMP program was fully implemented in December 2004 and has experienced a 30% decrease in landfilled solid waste
    - In 2006, 19,000 tons was recycled, an 18% increase over 2005
    - Projected savings of $2 million per year
    - Westwood Hills has a similar program
  - Purchase deposit or fee
    - 11 states have beverage container deposit legislation
    - Advanced disposal fees

- **Special Collection Events or Programs**
  - E-waste
    - KDHE has announced a new pilot program for the creation of collection centers
  - Household Hazardous Waste
    - Johnson County’s collection site in Mission, KS open to all county residents
    - Olathe’s collection site for Olathe residents only

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**Results from 1 Residential Truck from Prairie Village JCL Waste Sort October 2006**

- **Paper** 25%
- **Yard Waste** 36%
- **Wood** 0%
- **Textiles/Rubber/Leather** 9%
- **Food** 11%
- **Diapers** 3%
- **Plastic** 10%
- **Metal** 2%
- **Glass** 4%

**Results from 1 Individual Truck of Mixed Commercial Waste Sort at the JCL October 2006**

- **Yard Waste** 15%
- **Other 9%**
- **Paper** 33%
- **Wood** 3%
- **Textiles/Rubber/Leather** 5%
- **Food** 16%
- **Diapers** 3%
- **Metal** 1%
- **Plastic** 14%

---

**Construction & Demolition Waste vs. Municipal Solid Waste at JCL**

- **Construction & Demolition Debris** 13%
- **Municipal Solid Waste** 87%

: Deffenbaugh tonnage report, 2006
Different Solutions for Different Generators

- Residential
- Commercial
- Construction and Demolition Contractors

Different Solutions for Different Generators – Residential

- Education and awareness
  - Educational materials distributed through the schools and public venues
  - Visible recycling efforts by the Cities and County
  - Event recycling
  - Local recycling websites and newsletters - RecycleSpot
- County-wide consistency in materials collected for recycling
- Pay-as-you throw – over 6,000 U.S. communities have successfully implemented PAYT (EPA)

What is Pay-As-You Throw?

- Residents are charged for the collection of MSW based on the amount they throw away.
- Results in an economic incentive to generate less waste and compost and recycle more.
- Traditionally, residents pay for waste collection through property taxes or a fixed fee, regardless of how much—or how little—they generate.
- PAYT breaks with tradition by treating trash services just like electricity, gas, and other utilities.
  (MSW Management Elements 2006)
  Materials set out for recycling and/or composting are then collected for “free”

Different Solutions for Different Generators – Commercial

- City or County sponsored collection of recyclable materials - voluntary
- Regulatory
  - Require haulers to offer recycling options to commercial establishments
  - Require building owners to provide recycling bins for commercial tenants

Different Solutions for Different Generators – C & D

- Regulatory - Disposal
  - Kansas regulates for proper disposal (not recovery)
  - Massachusetts has banned certain materials (asphalt, brick, concrete, wood, scrap metal, corrugated containers)

Different Solutions for Different Generators – C & D continued

- Regulatory – Recovery
  - Portland, OR requires job-site recycling and recycling plan prior to issuing permits (projects valued >$50k)
  - San Jose, CA requires demolition contractors to pay a deposit based on square footage that is refunded if C&D waste taken to a city-certified recovery facility
### Program Examples

**Lawrence Small and Midsize Business Voluntary Paper Recycling**

- **Old corrugated containers**

- **Sorted office paper**

### Plastic Wal-Mart Sandwich Bales

- **Baled old corrugated containers (OCC) and plastic film**
- **Why?** Plastic is difficult to bale by itself. The plastic and OCC is then easy to separate later.
- **Dramatically decreases dumpster needs/landfill disposal costs.** Wal-Mart estimates that if all its stores utilized this system, they could add $28 million dollars to their bottom line.
- **Bales are typically 60% OCC and 40% plastic.**
- **Pilot project at 326 of their western stores, in one month, recycled 5,376 tons of plastic that would otherwise go to a landfill.**
- **Central contracting with hauler (corporate)**

### Composting Food Waste

- **Missouri Organics began composting food waste in 2005**
- **Currently composting 4,000 tons per year food waste from six organizations (anticipate 9,000 tons in 2007)**
- **Jackson County Detention Center, Hallmark Cards, Whole Foods Market, Delmonte, Mr. Dell Foods and Cargill Corp.**
- **Received a grant to expand to grocery stores and restaurants in 2007**

### Food Waste Composting

- **Backyard composting**
- **Mulching mowers**
- **Curbside pick up of yard waste for composting**
Large Scale Composting
Missouri Organic

Recovering Construction & Demolition Debris
• After requiring recycling plans as part of permitting process, Portland, OR recovers 50% of the C&D waste stream

How Much are We Recycling?
• MSW recycling rate of 22%
  – Residential 13%
  – Commercial 34%
• National MSW recycling rate of 32%

What Impacts do the Different Solutions have on our Recycling Rate?

Residential
• Education to increase curbside participation rates
  – Increasing rate from an estimated 44% to 90% increases the overall rate from 22% to 27%
• Yard waste ban
  – Recycling rate increases to 29%
• Doing both increases the rate to 34%

Residential
• Pay-as-you throw
  – Overall recycling rate increases to 42% (using KCMO data)
Examples of PAYT Success Stories

• Gainesville, FL (pop. 95,500), saved $200,000 in landfill tipping fees after implementing PAYT in 1994, reduced solid waste collection by 18%, and increased its recycling rate by about 25%.
• Wilmington, NC (pop. 76,800), saved $400,000 in the first year of PAYT (1992).
• Worcester, MA (pop. 172,600), decreased its waste management costs by $1.2 million and increased its recycling rate from 3% to 36% immediately following the introduction of PAYT in 1993.
• The recycling rate in San Jose, CA (pop. 895,000), rose from 28% to 43% in the first year of its program (1993), and rose again to 55% by 1998.
• In Tacoma, WA (pop. 194,000), solid waste management costs fell by more than 50% in the PAYT program’s first year, and the recycling rate tripled.
• Falmouth, ME (pop. 4,100), decreased its trash disposal volume by 35% and increased recycling by more than 50% after establishing PAYT in 1992.
• In Mount Vernon, IA (pop. 3,400), PAYT helped the community reach a 50% recycling rate. Source: MSW - Elements 2006

Commercial

• If current commercial recycling rate increases from 34% to 40%, overall rate increases from 22% to 25%
• If increase from 34% to 50%, overall rate increases to 29%
• If increase to 60%, overall rate increases to 33%

Residential plus Commercial

• Residential participation at 90%
• Yard waste ban
• Commercial recovery increased to 60%
-- MSW recycling rate increases to 45% --

Construction and Demolition Debris

• Currently, an untapped resource for recycling in JoCo
• Approximately 550,000 tons are disposed of in JoCo each year
• CD Recyclers in Wichita, KS, a small CD landfill, is able to recycle 80% of its waste

Summary

• Waste reduction is important
• Lots of options for waste reduction
• Lots of success stories from other areas

What are your ideas for promoting waste reduction in the Johnson County solid waste management plan?

For more information. . .

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betsy.betros@jocogov.org
phil.askey@jocogov.org
(913) 715-6900
Solid Waste Management System in Johnson County

Stakeholder Vision
May 17, 2007

Agenda
- Discussion topics
  - Future disposal options
  - Roles of various parties and opportunities for collaboration

Under KS Law . . .
- Counties are generally responsible for solid waste planning . . .
  - Through a Solid Waste Management Committee . . .
    - That develops a Solid Waste Management Plan
      - Adopted by the Board of County Commissioners

Facts From Stakeholder Meetings
- Most waste is disposed at landfills; about 22% is recycled
- Primarily private sector driven, with the largest landfill in the metro area to close by 2027
- Services and costs vary widely
- Most of the waste generated in the County is disposed in the County
- Much of the waste generated outside the County is disposed in the County
- Region’s solid waste future is tied to the County’s

Landfills in Region

Sanitary Landfills in Region
2005 Data

- Lee’s Summit Landfill
  - 84,647 tons/yr

- Hamm Quarry Landfill
  - 433,800 tons/yr

- Rolling Meadows Landfill
  - 484,500 tons/yr

- Johnson County Landfill
  - 1,776,500 tons/yr

- Show-Me-Regional Landfill
  - 137,512 tons/yr

- Courtney-Ridge Landfill
  - 409,884 tons/yr

- St. Joseph Landfill
  - 106,451 tons/yr

- 688,000 tons MSW from Missouri to Kansas Landfills
Estimated Predominant Waste Flow of Region
(variations exist even in counties with solid colors)

3,065,300 tons MSW disposed of in 4 Kansas landfills in 2005
738,494 tons MSW disposed of in 4 Missouri landfills in 2005

Johnson County Landfill
Forest View Landfill (closed 12/31/06)
Hamm Landfill
Rolling Meadows Landfill
Allen and Crawford counties landfills

St. Joseph Landfill
Lee’s Summit Landfill
Courtney-Ridge Landfill
Show-Me-Regional Landfill

3,065,300 tons MSW disposed of in 4 Kansas landfills in 2005
738,494 tons MSW disposed of in 4 Missouri landfills in 2005

No transfer stations or landfills. Direct haul to various landfills.
Transfer stations and landfills. Direct haul to various landfills.

Remaining Life of Kansas MSWLFs 2005
Source: KDHE
Jo/Wy Counties updated 5/07 by JCED

These 4 landfills received 66% of all MSW disposed in Kansas in 2005.
These 4 landfills received 66% of all MSW disposed in Kansas in 2005.

New Solid Waste Plan . . .

• Must account for diminishing landfill capacity
• Must recommend disposal options that are both economical and environmentally responsible

Future Waste Disposal Options

• Land disposal
• Transfer stations
  – Over-the-road haul
  – Rail haul
• Combustion
  – Waste-to-energy
  – Dedicated units

Future Waste Disposal Options (continued)

• Mixed waste processing
• Conversion technologies
  – Thermochemical
  – Biochemical

MSW Landfills Within 60 miles of Johnson County

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Tons per Year</th>
<th>MSW Tip Fee $/ton</th>
<th>Life in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnson County</td>
<td>Shawnee, KS</td>
<td>1,776,500</td>
<td>$44</td>
<td>20</td>
</tr>
<tr>
<td>Rolling Meadows</td>
<td>Topeka, KS</td>
<td>444,500</td>
<td>$30</td>
<td>60</td>
</tr>
<tr>
<td>Hamm Quarry</td>
<td>Perry, KS</td>
<td>433,800</td>
<td>$30</td>
<td>70+</td>
</tr>
<tr>
<td>Courtney-Ridge</td>
<td>Sugar Creek, MO</td>
<td>409,884</td>
<td>$54</td>
<td>15-20</td>
</tr>
<tr>
<td>Forest View</td>
<td>Kansas City, KS</td>
<td>370,500</td>
<td>0</td>
<td>(closed 12/06)</td>
</tr>
<tr>
<td>Show-Me-Regional</td>
<td>Warrensburg, MO</td>
<td>137, 512</td>
<td>$49</td>
<td>25+</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>St. Joseph, MO</td>
<td>106,451</td>
<td>$30</td>
<td>20</td>
</tr>
<tr>
<td>Lee’s Summit</td>
<td>Lee’s Summit, MO</td>
<td>84, 647</td>
<td>$30</td>
<td>7</td>
</tr>
</tbody>
</table>

Total Tons per Year: 3,803,794
Land Disposal

- **Pros**
  - Proven technology
  - Lower operating costs
- **Cons**
  - Large land use requirement (>1,000 acres)
  - High capital costs
  - Difficult to site a new facility

Landfill Economics

- **Atlanta, GA study (2,500 tpd landfill)**
  - Capital costs of $192 million
  - Annual operating costs of $5.7 million (includes debt service)
- **Sonoma County, CA study**
  - Capital costs of $260,000 per acre
  - Annual operating costs of $5.7 million

Land Disposal Example

- **Wichita**
  - Brooks landfill closed in 2001 ($26/ton tip fee)
  - Two transfer stations delivered 1,220 tpd to the Rolling Meadows Landfill in Topeka and a landfill in Meno, OK ($35+/ton tip fee)
  - Transfer station land use: 20 acres each
  - Plumb Thicket Landfill in Harper County, KS

Plumb Thicket Landfill

- **Waste Connections of Kansas, Inc**
  - Three counties turned down offer to site landfill before Harper County was approached
  - Under consideration by the County in 2000
  - Receiving waste in 2006
  - Land use: total 958 acres; landfill 229 acres
  - Projected 50 year life
  - Host agreement limits total waste to 2,000 tpd

Wichita Economics

- **Residents pay**
  - $25 per month for trash
  - $1.50 to $5.50 per month for curbside collection of recyclables
- **Transfer station**
  - $47 per ton tip fee
- **20 drop-off sites for recyclable materials**
  - No cost – owned by Waste Connections

Transfer Station

- **Pros**
  - More economical than direct haul if distance to disposal facility is >21 miles; 18 to 30 miles
  - Opportunity to inspect waste
  - Opportunity to process waste
  - Small land requirements (~20 acres)
- **Cons**
  - Difficult to site
  - Concentrated neighbor truck traffic
### Transfer Station Economics

- **Capital costs**
  - $2.3 million (facility similar in size to Olathe)
- **Operating costs**
  - $300,000 to $650,000 (220 tons per day facility)

### Transfer Station Example

- Olathe transfer station accepting about 220 tons per day
- They are investigating their options for expanding
- Olathe's costs are $27.69 per ton (facility, haul, and disposal)
- Number of employees
  - 2.5 FTE Olathe employees
  - 2 Hamm employees

### Rail Haul

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost effective</td>
<td>Siting rail transfer facility can be difficult</td>
</tr>
<tr>
<td>Safest way to move MSW over long distances</td>
<td>Sending MSW to “someone else’s back yard”</td>
</tr>
<tr>
<td>Reduces the number of tractor-trailers on the interstate system</td>
<td>High capital costs</td>
</tr>
<tr>
<td>Complex contract arrangements</td>
<td>Coordination of waste flow</td>
</tr>
</tbody>
</table>

### Rail Haul Economics

- Quantities – 200+ tons per day
- Distance – 150 - 200+ miles
- Cost example – Snohomish County, WA
  - 515,000 people
  - 508,000 tons MSW per year
  - 315,000 tons MSW (after recovery)
  - 3 transfer stations
  - Rail haul 340 miles
  - $43.00 per ton MSW

### Combustion Waste-To-Energy

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proven technology</td>
<td>May lose recyclable and compostable materials</td>
</tr>
<tr>
<td>Can restrict to non-recyclable, non-compostable materials</td>
<td>Requires a consistent level of waste (through contracts)</td>
</tr>
<tr>
<td>Replaces “dirtier” fuels such as coal</td>
<td>High capital costs</td>
</tr>
<tr>
<td>Reduces volume of MSW (~80 percent)</td>
<td>High operating costs and tip fees</td>
</tr>
<tr>
<td>Low land requirement (25 acres)</td>
<td></td>
</tr>
</tbody>
</table>

### Waste-To-Energy Economics

- **Capital costs**
  - $250 to $315 million (2,250 tons per day)
- **Operating costs**
  - Tip fee
  - Broward County, FL 2,250 tons per day
  - $92 per ton (compared to $50 per ton landfill)
Combustion Dedicated Units

- On-site use of MSW as fuel
- MSW is processed for consistency in composition and size
- Often replaces “dirtier” fuels
- Capacity may be limited

Dedicated Unit Example

- Lafarge North America cement manufacturer at Sugar Creek, MO
  - Corporate policy to reduce CO2 emissions; alternative fuel is one method identified
  - Local facility is considering alternative fuels including processed MSW
  - Capacity may be limited

Mixed Waste Processing (Dirty MRF)

- **Pros**
  - Proven management option
  - 46 U.S. facilities
  - Flexibility of facility/program configuration (e.g. wet/dry collection)
  - 100% participation by residents
  - Easy to participate
- **Cons**
  - Recyclable materials are missed by the process
  - Source reduction is not emphasized
  - Safety of workers (hazardous materials “hidden”)
  - Potential odor problem
  - Quality of recovered material may limit marketing

Mixed Waste Processing Economics

- California multi-jurisdictional example (375,000 population)
  - Capital costs
    - Dirty MRF with composting $7.6 to $10.7 million
  - Operating costs
    - $28 to $40 per ton (compared to $27 per ton landfill)

Conversion Technologies

- **Thermochemical**
  - Pyrolysis
  - Gasification
  - Plasma arc
- **Biochemical**
  - Fermentation
  - Depolymerization

Conversion Technologies

- **Pros**
  - Manage large quantities of wastes
  - Produces a saleable energy product
- **Cons**
  - New technology
  - High capital costs
  - High operating costs and tip fees
  - Require steady waste flow
Thermochemical

- High heat with or without air or oxygen
- Converts MSW into
  - Energy products such as oils, fuel gases, synthetic gases
- Plasma arc technology converts MSW into
  - Synthetic gases
  - Slag (rock like material)
- Capital costs – plasma arc
  - $425 million - 3,000 tpd (FL planning stage)

Biochemical

- Fermentation is an anaerobic process
- Depending on the MSW feedstock, depolymerization may be required
- Converts biodegradable portion of MSW (paper, wood, yard wastes) into
  - Liquids fuels such as ethanol
- Capital costs over $250 million (New York state facility in planning stage)

Roles of various parties and opportunities for collaboration

Under Johnson County’s Current Plan...

- Cities are responsible for ensuring adequate waste & recyclables storage & collection/hauling services
- County government is responsible for ensuring adequate disposal capacity county-wide

Waste Reduction Stakeholder Meeting April 7

- General waste reduction – top 3
  - Establish a county-wide recycling system. One that establishes consistency throughout the county.
  - Create markets for all recycled materials and coordinate education efforts.
  - Create comprehensive and coordinated education effort with county-wide focus.
- Residential recycling – top 3
  - Pay-as-you throw
  - Yard waste composting
  - Ban yard waste from disposal

Future Role of Various Parties

- Roles may change in the new plan
  - Roles in waste reduction, recycling, composting
  - Roles in waste disposal
- Changes that are necessary to support the County’s future solid waste management system
Collaboration Opportunities

- Citywide or Countywide coordination
- Partnering, on some level, to achieve changes necessary to support a new solid waste management system for the county
- Interlocal agreements
  - Examples
    - Multiple homeowners associations
    - Private/public
    - City to City
    - City to County
    - County to County

Assume the Johnson County Landfill is closing and other disposal options must be found. What future disposal options do you favor for the County and why?

What roles should the various parties play in the future of SWM in Johnson County? Identify opportunities for collaboration.

For more information...

http://jced.jocogov.org/
cindy.kemper@jocogov.org
betsy.betros@jocogov.org
phil.askey@jocogov.org

(913) 715-6900
New Johnson County Solid Waste Management Plan

Presentation to Ad Hoc Solid Waste Stakeholders Group
October 23, 2007

Key Elements of New Plan . . .

Have been sanctioned by Solid Waste Management Committee

And shared with —
• Council of Mayors
• City Administrators Group

Feedback is supportive

Under KS Law . . .

• Counties, through a Solid Waste Management Committee, must develop & adopt a Solid Waste Management Plan that . . .
  – Provides for proper storage, collection, transportation, processing & disposal of all solid waste generated in the County
  – Provides for waste reduction
  – Is reviewed annually and comprehensively revised every 5 years as needed – we are here

The Johnson County Landfill, Inc.

• Largest landfill in KS & KC region
• 51% of trash disposed in KS goes to Landfill
• 82% of county’s trash goes to Landfill
• 40% of trash going to Landfill comes from MO
• Disposal rates at Landfill growing much faster than population

Driving Force for New Plan

• Johnson County Landfill will close no later than 2027 under agreement with Shawnee. At current disposal rates, it may close sooner.

• No new landfills are planned in the 8 county metro region. No existing landfills in the region have enough capacity to take the county’s waste. Hamm Landfill in Jefferson County located outside the region may be large enough.

• It can take 10-15 years to site and build a new landfill.

Driving Force for New Plan (cont.)

• Action must start in 2008 to ensure adequate and affordable disposal capacity after the Johnson County Landfill closes.

• Waste reduction actions are needed to decrease the amount & cost of future disposal capacity.

New Plan Development Process

• Solid Waste Management Committee has drafted new Plan with support & input from . . .
  – BOCC
  – County staff
  – Consultants & partners
• BOCC and Committee sought broader input through Stakeholders Group
  – Cities
  – Homeowners Associations
  – Solid waste service providers
  – Public interest groups

Agenda for Today

• Recap of Need for New Plan & Plan Development Process including Stakeholders’ Input
• Key Plan Themes
• Plan Recommendations
• Impact of Plan Recommendations
• Next Steps
• Q & A
Appendix J  Johnson County Ad Hoc Solid Waste Stakeholder Group Presentations

**New Plan Development Process**
- Data collection & analysis
- Key stakeholders and BOCC input
- Development of Plan with recommendations for future waste management (including waste reduction)
- Presentation of draft Plan to key stakeholders
  - Presentation of draft Plan to BOCC
  - Hold Public Hearing
  - Adoption of new Plan by BOCC

**What are We Throwing Away?**
- In 2006 and 2007, Johnson County and MARC sponsored a waste sort at Johnson County disposal facilities.

**Waste Sort at the Johnson County Landfill (JCL): Summary of All Trucks Sampled**

- Paper 40%
- Newspaper 4.09%
- Office Paper 5.61%
- Corrugated Paper 15.28%
- Magazines 4.23%
- Other Paper 14.36%
- Newspapers 1.14%
- Office Paper 2.12%
- Textiles/Rubber/Leather 8%
- Other 1%
- Wood 2%
- Yard Waste 10%
- Food 15%
- Diapers 3%
- Metal 3%
- Glass 4%
- Plastic 13%

**Sanitary Landfills in Region 2005 Data**

**Current Solid Waste Management System Themes**
- Primarily private sector driven
- Services and costs vary widely
- Most of the waste generated in the County is disposed in the County
- Much of the waste generated outside the County is disposed in the County
- Significant quantities of recyclable materials are being landfilled
- County’s recycling rate is considerably lower than national rate
- Region’s solid waste future is tied to the County’s

**How Much are We Recycling?**
- MSW recycling rate of 22%
  - Residential 13%
  - Commercial 34%
- National MSW recycling rate of 32%

**Key Themes in the New Plan**
- Ensuring adequate and affordable disposal capacity
- Aggressive waste reduction efforts
- More consistency in the scope and cost of solid waste services across the County
- Collaboration among the County, cities, businesses, homeowner associations, and solid waste industry
- A stronger County role

**Key Themes in the New Plan (cont.)**
- Some public control over the county’s waste flow may be necessary
- Coordination with nearby county and regional partners may expand solutions
- Landfilling is probably the most affordable future disposal option (other technologies should be tracked & periodically re-assessed)
- A new transfer station(s) is likely needed
- Johnson County is an unlikely site for a new landfill
Appendix J

Johnson County Ad Hoc Solid Waste Stakeholder Group Presentations

New Plan Recommendations

- Based on input from Stakeholders Group, Solid Waste Committee, BOCC, & consultants
- Broad consensus over future solid waste management directions needed for County

Future Waste Reduction Strategies

- Strive toward a recycling rate that exceeds the national average (ongoing)
- Increase curbside recycling services, participation & quantities of materials collected (ongoing)
- Increase recycling in commercial & multi-family residential sectors (ongoing)

Future Waste Reduction Strategies (cont.)

- Implement countywide recycling of residential electronic waste (by 2008)
- Eliminate disposal of yard waste in landfill (by 2011)
  - Establish widely available disposal alternatives (composting, mulching mowers, curb-side segregation & pickup)
  - Implement county-wide ban on yard waste in landfill once alternatives are in place

Future Waste Disposal Strategies

- Reduce amount of waste requiring disposal by implementing waste reduction measures (ongoing)
- Investigate feasibility of various disposal options with waste management sector (ongoing)
  - Private sector plans for new waste processing or disposal capacity
  - Waste flow controls
  - Multi-jurisdictional agreements
  - Technical studies on best options

Impacts of Implementing Recommended Strategies

Generation of Solid Waste in Johnson County, 2005

<table>
<thead>
<tr>
<th>Solid Waste Category</th>
<th>Quantity (tons)</th>
<th>Percent of Total</th>
<th>Pounds per Person per Day (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSW (2)</td>
<td>363.67</td>
<td>63.0</td>
<td>6.12</td>
</tr>
<tr>
<td>C&amp;D</td>
<td>201,578</td>
<td>30.7</td>
<td>2.89</td>
</tr>
<tr>
<td>Other Waste</td>
<td>37,703</td>
<td>4.3</td>
<td>0.40</td>
</tr>
<tr>
<td>Total</td>
<td>602,954</td>
<td>100.0</td>
<td>9.01</td>
</tr>
</tbody>
</table>

Generation, Recovery, and Disposal of MSW in Johnson County, 2005

<table>
<thead>
<tr>
<th>Category</th>
<th>Pounds per Person per Day (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>201,578</td>
</tr>
<tr>
<td>Recycled</td>
<td>247,145</td>
</tr>
<tr>
<td>Disposal</td>
<td>457,738</td>
</tr>
<tr>
<td>Total</td>
<td>505,463</td>
</tr>
</tbody>
</table>

Other Waste (%)

- C&D 31.0%
- MSW 63.0%
- Other Waste 6.0%
Appendix J  Johnson County Ad Hoc Solid Waste Stakeholder Group Presentations

---

**Generation per Person is Predicted to Increase, Driving the Need for Effective Waste Reduction/Recovery Programs**

| Category    | 2005 | 2017 | 2037 | 2035 to 2037
|-------------|------|------|------|-------------
| Generation  | 855,473 | 710,710 | 660,810 | 5.2%        
| Recovery    | 127,755 | 184,420 | 194,510 | 52.2%       
| Disposal    | 433,790 | 445,765 | 666,960 | 52.2%       
| Disposal (tonnes per person per day) | 4.73 | 5.84 | 7.18 |

---

**Aggressive Waste Diversion**

- Expansion of curbside recycling collection to cities without
- Implementation of volume-based residential trash collection structure (i.e., pay-as-you-throw)
- Separate curbside yard waste collection with landfill ban
- Increased commercial recycling by 35%

**All recommended in Plan**

---

**Aggressive Waste Reduction**

| Category    | 2005 | 2017 | 2037 | 2035 to 2037
|-------------|------|------|------|-------------
| Generation  | 855,473 | 710,710 | 660,810 | 5.2%        
| Recovery    | 127,755 | 184,420 | 194,510 | 52.2%       
| Disposal    | 433,790 | 445,765 | 666,960 | 52.2%       
| Disposal (tonnes per person per day) | 4.73 | 5.84 | 7.18 |

---

**Resources Needed to Implement the Plan**

- Implementing the Plan will require the commitment of additional resources starting in 2009 and continuing throughout the 20-year plan horizon
- Annual investment of about $340,000 is needed:
  - two new full-time County staff
  - educational and outreach materials
  - consulting assistance
- The County should begin immediately to explore appropriate funding sources

---

**Is Status Quo a Good Option?**

- Future disposal costs will be higher if waste is not reduced
- Waste reduction now softens the financial impact of higher disposal costs later on citizens & businesses
- Future disposal options must be further assessed now to avoid a trash disposal crisis later
- Taking actions now will ensure that Johnson County remains a Community of Choice
Appendix J  Johnson County Ad Hoc Solid Waste Stakeholder Group Presentations

Next Steps . . .

- October 24 – November 9 Public Comment Period
- November 7 Public Hearing
- November 14 Committee adoption
- December 6 BOCC adoption
- Submit to KDHE for state approval
- Seek resources to implement new Plan
- Implement, implement, implement

Next Steps . . .

- Public Hearing on November 7 begins at 7 p.m. at the Sunset Office Building
- Participants in Stakeholders Group invited to attend and comment
- Draft Plan is available for review & comment at the following locations:
  - County libraries
  - County offices
  - www.jocogov.org

Next Steps . . .

- Form community groups to assist in outreach & implementation
- Need continuing support & input from Stakeholders Group in some form

Questions . . .
APPENDIX K

PUBLIC HEARING NOTIFICATION
JOHNSON COUNTY SOLID WASTE MANAGEMENT PLAN, 2007 EDITION
PUBLIC COMMENT OPPORTUNITIES

- Ad Hoc Solid Waste Stakeholders Group Meetings – March 27, April 19, May 17 & October 23, 2007
- Johnson County Council of Mayors Meetings – May 2 & October 3, 2007
- Northeast Kansas City Administrators Group Meeting – October 3, 2007
- Johnson County Board of County Commissioners Meetings – July 19, October 25 & December 6, 2007
- Notice of Public Comment Period (October 24 to November 9, 2007) – Published in Kansas City Star, Johnson County Sun, & Olathe Daily News
- Hard Copies of draft Plan Available for Public Review – Johnson County Board of County Commissioners Office, Olathe, KS; Johnson County Environmental Department, Olathe, KS; Johnson County Central Resource Library, Overland Park, KS; Olathe Public Library, Olathe, KS
- Link to Electronic Copy of draft Plan Shared with all Johnson County City Administrators for Posting to City Web Sites
- Kansas City Star Announcements and Internet Blog about Plan with Information about Public Hearing – November 6 & 7, 2007
- 710 AM Radio Show about Plan with Information about Public Hearing – November 6, 2007
- Johnson County League of Women Voters Newsletter – November, 2007
- Public Hearing on Draft Plan – November 7, 2007
- Board of County Commissioners Meeting to Consider Plan Adoption – December 6, 2007
Appendix K

Public Hearing Notification

NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing shall be held by the Board of

County Commissioners of Johnson County, Kansas, on Wednesday,

November 7, 2007 at 7:00 p.m., at the Samuel

Drive Office Building,

1181 South Sunset

Drive, Room 1070,

Olathe, Kansas 66061, to

receive and hear comments

regarding the proposed

adoption of a new

solid waste management

plan for Johnson County,

Kansas.

Any person who wishes to review the proposed

solid waste management

plan for Johnson

County may do so at the following locations:

Johnson County Central

Resource Library, 9875

West 87th Street, Over-

land Park; National

Castle Main Library, 201

East Park Street, Olathe,

Kansas; the Johnson

County Environmental

Department, 1181 South

Sunset Drive, Suite 2700,

Olathe, Kansas; and the

Office of the Board of

County Commissioners,

111 South Cherry Street,

Suite 2200, Olathe, Kansas.

The proposed plan is also available on the

web by going to www.jco.gov and

clicking on the solid

waste management

plan.

Any person with questions

regarding the proposed

adoption of the new

solid waste management

plan for Johnson

County, Kansas, may

contact the Johnson

County Environmental

Department at 913-715-

6900.

Written comments

regarding the proposed

new plan will also be

accepted from October

24, 2007 through Novem-

ber 9, 2007, at the follow-

ing address: Johnson

County Environmental

Department, 1181 South

Sunset Drive, Suite 2700,

Olathe, Kansas 66061.

Please be aware that the

proposed new plan is

subject to further revision,

amendment or change.
AFFIDAVIT OF PUBLICATION

THE McCLATCHY COMPANY, publishers of THE KANSAS CITY STAR, a newspaper published in the City of Kansas City, County of Jackson, State of Missouri, confirms that the notice and/or advertisement of JOHNSON COUNTY ENVIROMENTAL

11811 S SUNSET DR SUITE 2700
OLATHE KS 66061
24593294
7156904

a true copy of which is hereto attached, was duly published in the above said newspaper

FOR THE PERIOD OF: 1 Day (s)

COMMENCING: October 24, 2007

ENDING: October 24, 2007

STAR EDITION (S): 10/24

STAR PAPER (S): 37

VOLUME: #128

Subscribed and sworn to before me, this Wednesday, 24 October, 2007. I certify that I was duly qualified as a Notary Public for the State of Missouri, commissioned in Jackson County, Missouri. My commission expires September 10, 2010.

Laura S. Keeling, Notary

LAURA S. KEELING
Notary Public - State of Missouri
My Commission Expires September 10, 2010
Jackson County
Commission 108129929
PROOF OF PUBLICATION

STATE OF KANSAS) }SS:

COUNTY OF JOHNSON

LISA TIBBETTS, of lawful age, being first duly sworn, doth and saith that she is LEGAL CLERK of

THE OLA THE NEWS

A daily newspaper printed in the State of Kansas and published in the City of Olathe, Johnson County, Kansas, of general paid circulation on a daily, weekly, monthly, or yearly basis in Johnson County, Kansas, and not a trade, religious, or fraternal publication, which newspaper has been entered as a second-class mail matter in the United States post office in Olathe, Kansas, which said newspaper in its separate and combined weekly form is in its daily form and under all of its former names, separate or combined, and its present name, has possessed all of the foregoing qualifications and has continuously and uninterruptedly published weekly or daily for more than fifty weeks a year and has been so published for more than five years prior to the first publication of the notice hereinafter mentioned; and that a notice, of which a true copy is in the TUESDAY issue of THE OLATHE NEWS for, ONE WEEK, the first publication being made as aforesaid on the TWENTY-THIRD day of OCTOBER 2007, A.D., and the last on the TWENTY-THIRD day of OCTOBER, 2007 A.D.

Affiant further says that she has personal knowledge of the statements above set forth, and that they are true.

SUSAN R. SCHARSCH

(First Published in The Olathe News Tues., October 23, 2007) NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing shall be held by the Board of County Commissioners of Johnson County, Kansas, on Wednesday, November 7, 2007, at 7:00 p.m., at the Sunset Drive Office Building, 11811 South Sunset Drive, Room 107, Olathe, Kansas 66061, to receive and hear comments regarding the proposed adoption of a new solid waste management plan for Johnson County, Kansas. Any person who wishes to review the proposed new solid waste management plan for Johnson County, Kansas, may do so at the following locations: Johnson County Central Resource Library, 6075 West 87th Street, Overland Park, Kansas; Olathe Main Library, 201 East Park Street, Olathe, Kansas; the Johnson County Environmental Department, 11811 South Sunset Drive, Suite 3300, Olathe, Kansas. The proposed plan is also available on the web by going to www.jocogov.org and clicking on the solid waste management plan link.

Any person with questions regarding the proposed adoption of the new solid waste management plan for Johnson County, Kansas, may contact the Johnson County Environmental Department at 913-715-6500.

Written comments regarding the proposed new plan will also be accepted from October 24, 2007 through November 9, 2007, at the following address: Johnson County Environmental Department, 11811 South Sunset Drive, Suite 2700, Olathe, Kansas, 66061.

Please be aware that the proposed new plan is subject to further revision, amendment or change prior to any final adoption, depending on the evidence, comments, or testimony that may be given at the public hearing or submitted by persons affected thereby, which comments shall be considered by the Board of County Commissioners prior to any final adoption.

Johnson County, Kansas, complies with the Americans with Disabilities Act. If you have a disability and need special arrangements for the public hearing, please call (913) 715-6900 at least 48 hours prior to the hearing.

(23)

Subscribed and sworn to before me this TWENTY-THIRD day of OCTOBER, 2007.

SUSAN R. SCHARSCH

JOHNSON COUNTY SOLID WASTE MANAGEMENT PLAN, 2007 EDITION

RESPONSES TO PUBLIC COMMENTS RECEIVED DURING OCTOBER 24 – NOVEMBER 9, 2007 COMMENT PERIOD

Verbal Commenter Robert Rowland (Shawnee): Mr. Rowland supports the direction of the Solid Waste Management Plan, but is concerned that the waste reduction measures in the Plan are not aggressive enough. He indicated that recycling rates in other areas of the country are much higher than in Johnson County and he expressed general support for volume-based waste collection rates. He suggested that rising fuel costs will make future waste hauling and disposal much more expensive, making it more important to reduce waste destined for disposal.

Response: The Solid Waste Management Committee and County staff appreciate Mr. Rowland’s support and agree that the waste reduction measures in the Plan should be implemented as aggressively as possible. The success of those measures will depend upon the commitment of sufficient resources and the extent to which cities, homeowners associations, businesses and the public at large embrace the changes recommended in the Plan. Rising fuel costs will certainly be an important factor in evaluating future disposal options for the county.

Verbal Commenter Chet McLaughlin (Overland Park): Mr. McLaughlin supports the recommendations in the Solid Waste Management Plan, and in particular the Plan development process in which he participated as a stakeholder representative of the U.S. Environmental Protection Agency. He noted that the national waste reduction goal is expected to approach 40 percent by 2015, so implementation of the Johnson County Plan will contribute to success in reaching that goal. He urged the Board of County Commissioners to commit the resources necessary to implement the Plan, noting that by his calculations, it would cost about $0.60 to $0.70 per Johnson County resident per year. Finally, he commented that increased recycling in the County is likely to lead to more local business opportunities.

Response: The Solid Waste Management Committee and County staff appreciate Mr. McLaughlin’s support and agree with his observations.

Written Commenter Lisa McDaniel (SCS Engineers): Ms. McDaniel supports the Plan as setting a reasonable course of action for Johnson County. However, she cautioned that the implementation schedule may be unrealistic for 2008 in light of the fact that additional resources to implement the Plan, if any, may not be available until 2009.

Response: The Solid Waste Management Committee and County staff appreciate Ms. McDaniel’s support and agree that the implementation schedule is aggressive, especially in the early years of the Plan. The County is exploring whether temporary staff re-assignments and use of one-time funding would allow progress on the tasks scheduled for 2008 while pursuing more permanent resource commitments for 2009 and beyond. Should resources not be available to support full implementation of the Plan, the schedule will need to be modified in the next Plan update.
October 31, 2007

TO: Cindy Kemper, Director, Johnson County Environmental Department  
Ruth Hopkins, Chair, Johnson County Solid Waste Management Committee

FR: Dean Palos, AICP, Director of Planning  


I have reviewed the proposed Johnson County Solid Waste Management Plan, Edition 2007 (SWMP), as required by the Kansas Department of Health and Environment (KDHE) and have found it to be consistent with the Johnson County Rural Comprehensive Plan.

Although the proposed SWMP does not include specific recommendations for possible future solid waste processing sites, the recommendations for reducing solid waste generation and disposal are compatible with the goals and strategies in Rural Comprehensive Plan. These goals and strategies include achieving a coordinated approach to development, both locally and regionally, as well as assuring the availability of adequate public facilities to accommodate future population growth.

If you have any questions regarding my response, please let me know.

Cc: Board of County Commissioners  
Michael B. Press, County manager  
Bernice Duleta, Assistant County Manager

(913) 715-2200 or (913) 715-2201  
111 South Cherry Street, Suite 3500 Olathe, Kansas 66061-3441  
Fax: (913) 715-2222
APPENDIX M

JOHNSON COUNTY CHRONOLOGY

Prepared By:
Johnson County Environmental Department

October 2007
1972  * Original SWMP
1980  * Establishment of SWMRC
January 17, 1990  * SWMRC meeting
April 18, 1990  * SWMRC meeting
July 18, 1990  * SWMRC meeting
January 23, 1991  * SWMRC meeting
April 22, 1991  * JCED submitted LEPP grant application
April 24, 1991  * SWMRC meeting
July 1, 1991  * LEPP grant award at $50,000
July 24, 1991  * SWMRC meeting  
  - LEPP Grant Core Components  
    • Sanitary Code  
    • 1972 SWMP Revision  
    - SWMP Scope of Services
October 23, 1991  * SWMRC meeting  
  - Phase 1/SWMRC role on SWMP increased involvement - monthly meetings
November 20, 1991  * SWMRC meeting  
  - SWMRC commitment  
  - SWMRC structure  
  - Council of Mayors/City County - Role  
  - Tentative schedule - SWMP Phase 1
December 18, 1991  * SWMRC meeting  
  - Phased approach outline  
  - Cities requested to provide input and direction  
  - Council of Mayors role emphasized  
  - RFP drafted
January 29, 1992  * SWMRC meeting  
  - $60,000 for Phase 1  
  - JCED plans to apply for LEPP grant for Phase 2  
  - RFP finalized  
  - KDHE raises concerns  
  - Selection committee
February 19, 1992  * SWMRC meeting  
  - HB 2801 language  
  - RFP approved
March 18, 1992  
* SWMRC meeting  
  - HB 2801 language  
  - RFP sent out  
  - LEPP grant application

May 20, 1992  
* SWMRC meeting  
  - Interview and short list and selection  
  - HB 2801 - passed Kansas legislature - SWMC, SWMP, Tipping Fees 01/01/93  
  - SWMRC Role Changes

June 22, 1992  
* SWMRC meeting  
  - LEPP grant award - $60,000

July 2, 1992  
* LEPP grant award - $60,000

July 15, 1992  
* SWMRC meeting  
  - Phase I Study Components  
  - Questionnaire survey - Johnson County cities/townships  
  - Kansas HB 2801/Tipping Fee  
    • Impact on landfill contracts and homeowners

August 19, 1992  
* SWMRC meeting  
  - SWMP update  
    • Questionnaire survey results  
  - Kansas HB 2801  
    • State fee  
    • Restructuring of SWMC's

October 21, 1992  
* SWMRC meeting  
  - SWMP update  
    • Overview - Johnson County municipal solid waste (MSW) stream

December 11, 1992  
* Franklin Associates submits Phase II Proposed Scope of Services

December 16, 1992  
* SWMRC meeting  
  - Draft SWMP Phase 1 report review  
  - Kansas HB 2801 - proposed rules and regulations

February 17, 1993  
* SWMRC meeting  
  - Final Phase 1 report  
  - Phase 2 scope of work  
  - HB 2421/city representation  
  - Contract extension

April 1, 1993  
* BOCC approves Franklin Associates contract extension

April 21, 1993  
* SWMRC meeting  
  - SWMC restructure draft

June 16, 1993  
* SWMC meeting  
  - New SWMC structure  
  - Goals for Phase 2

July 8, 1993  
* BOCC approval of committee members for new SWMC structure
July 21, 1993  * SWMC meeting  
- New SWMC  
- Phase 2 update  
- Solid waste management goals

October 20, 1993  * SWMC meeting  
- Phase 2 update

December 15, 1993  * SWMC meeting  
- Draft Phase 2 report

January 19, 1994  * SWMC meeting  
- Diversion rate discussion/comments  
  • Waste reduction goal of 35% by year 2000  
  • Direction and method of reduction efforts - recycling/composting

February 23, 1994  * SWMC meeting  
- Diversion rate discussion/comments  
  • Long range planning - landfilling/recycling/composting  
  • Committee members reports (Class I, II, and III)

March 16, 1994  * SWMC meeting  
- Diversion rate discussion/comments  
  • Waste reduction goal of 30%

May 18, 1994  * SWMC meeting  
- Phase 2 discussion  
- Final draft to be prepared  
  • Changes in Chapter 7  
  • Addition of Chapters 13 and 14

August 26, 1994  * Submitted to KDHE - informal review

December 6, 1994  * Comments from KDHE

January 18, 1995  * SWMC meeting  
- Final changes to Phase 2 based on KDHE comments  
- Cities to review

April 19, 1995  * SWMC meeting  
- SWMC approves final Phase 2

June 15, 1995  * BOCC Work Session

June 30, 1995  * Notice of Public Hearing published in The Johnson County Sun newspaper

July 7, 1995  * Notice of Public Hearing published in The Johnson County Sun newspaper

July 14, 1995  * Notice of Public Hearing published in The Johnson County Sun newspaper
July 19, 1995  
* SWMC meeting  
- Overview of BOCC work session  
- Public Hearing

July 27, 1995  
* Public Hearing/BOCC adoption

August 1, 1995  
* SWMP submitted to KDHE

August 2, 1995  
* Resolution 070-95 published in The Johnson County Sun newspaper

October 2, 1995  
* Olathe Transfer Station became operational

October 18, 1995  
* SWMC meeting  
- Overview of last three months activities  
- Phil Wittek and Betsy Betros do a presentation on the Prairie Village cable TV program  
- Kansas HB 2036/Competitive Plan Implementation Grants

November 1995  
* Deffenbaugh’s MRF became operational

December 11, 1995  
* Received official KDHE comments on SWMP  
- Sent copies to SWMC  
- Phil Wittek drafts comment responses

December 28, 1995  
* JCED submitted grant application for Round 1 of the Competitive Plan Implementation Grants

January 17, 1996  
* SWMC meeting  
- Committee reviewed responses and suggested some changes  
- Committee suggested Phil Wittek meet with KDHE to clarify KDHE comments

January 26, 1996  
* Phil Wittek met with KDHE’s Miles Stotts  
- Reviewed draft=s responses point by point respective to KDHE=s comments  
- Response redrafted and sent to KDHE for review

January 29, 1996  
* JCED staff met with KDHE on review of 1982 Memorandum of Understanding for updating document

February 21, 1996  
* SWMC meeting  
- Committee reviewed new draft and suggested minor changes  
- Some additional informational items were added based on SWMC, Franklin Associates and KDHE discussions  
- SWMC recommended approval and Board action

March 14, 1996  
* BOCC Resolution 025-96 adopting SWMP Addendum

March 19, 1996  
* Round 1 Competitive Implementation Plan Grant awards of $14,210 to Johnson County Environmental Department for newsletter; $6,750 to the City of Fairway for public education; and $22,960 to the City of Overland Park for education and waste reduction
May 15, 1996  * SWMC meeting
  - Mayor Eilert’s letter dated 02/29/96 to BOCC regarding the
    SWMP discussed
  - Presentation of the Competitive Implementation Grants
    given by Phil Wittek

September 10, 1996  * Round 2 Competitive Implementation Plan Grant award of
                    $125,925 to the City of Olathe for a tub grinder

October/November 1996  * County purchased a large tub grinder/shredder (Godzilla) to
                        assist in city/county clean up from October 22 snowstorm.

November 13, 1996  * JCED submitted grant application on behalf of Public Works
                    for Round 3 of the Competitive Plan Implementation Grants

December 15, 1996  * Round 3 Competitive Implementation Plan Grants deadline

January 1, 1997  * Johnson County Environmental Department completed first
                 year of CESQG program

January 15, 1997  * SWMC meeting
  - SWMP
    • Adoption
    • Implementation
    • Review and revisions
  - Competitive Implementation Plan Grants
  - KSWMP
    • Adoption process
    • “Don’t Spoil It” campaign

February 5, 1997  * Council of Mayors meeting
  - Phil Wittek presented update on Kansas SWMP; Rounds
    1, 2, and 3 grants; and “Kansas, Don’t Spoil It” campaign

February 1997  * Round 3 Competitive Implementation Plan Grant awards of
               $75,000 to Johnson County Public Works for Godzilla;
               $35,000 to the City of Shawnee, and $25,000 to the City of
               Prairie Village

June 1997  * The county newsletter insert, Envirolink, published and mailed
           to all Johnson County residents

June 1997  * Environmental awarded $21,000 HHW grant for paint can
            crusher and canopy

June 27, 1997  * Deadline for Round 4 Competitive Implementation Plan
               Grants

July 1997  * Johnson County Environmental Department supports
          “Kansas Don’t Spoil It” by purchase and planned distribution
          of bumper stickers to county departments

July 1, 1997  * Olathe begins curbside recycling
July 10, 1997  
* KDHE hold public meeting on the state's solid waste plan and sent out survey

July 16, 1997  
* SWMC meeting  
  - Competitive Implementation Plan Grants update  
  - KSWMP  
    • “Kansas, Don't Spoil It” campaign  
    • Solid waste program review  
  - Johnson County SWMP review process  
    • Goals  
    • Checklist  
    • State survey

August 12, 1997  
* Johnson County Environmental Department received a $21,620 Household Hazardous Waste Grant

August 26, 1997  
* Round 4 Grant Applications/Awards  
  - Recycle Solutions (private)  
    • Awarded $151,500 for statewide collection program for recyclable materials  
  - City of Merriam  
    • Awarded $29,013.75 for distribution of backyard composting bins  
  - City of Olathe  
    • Requested $35,411.25/awarded zero for promotional/public education campaigns for curbside recycling. Deferred--for further information  
    • City of Shawnee  
    • Requested $32,882/awarded zero  
      Deferred--inadequate funds. City was awarded similar grant in earlier round  
  - Sunflower Environmental Group, Inc.  
    • Requested $167,250/awarded zero for fluorescent lamp processor. Deferred--inadequate funds available

October 15, 1997  
* SWMC meeting  
  - SWMP Review

November 19, 1997  
* SWMC meeting  
  - SWMP Review

January 21, 1998  
* Round 5 Grant Application/Awards  
  - Caring Ministry, Overland Park Church of Christ  
    • Awarded $35,000 for vehicles for food collection program  
  - City of Overland Park  
    • Awarded $6,200 for composting demonstration site  
  - City of Olathe  
    • Awarded $5,700 for curbside recycling educational material  
  - Sunflower Environmental Group, Inc.  
    • Requested $177,375; no award due to low priority

March 4, 1998  
* Letter to KDHE on SWMP review
March 18, 1998  *  SWMC Meeting  
-  Citizens Visioning Committee Report; only agenda item

June 3, 1998  *  Council of Mayors Meeting  
-  Tire amnesty program

June 24 & 25, 1998  *  Governor’s Solid Waste Grants Advisory Committee Round #6 grant review

July 1, 1998  *  City of Prairie Village - cardboard recycling for businesses at Prairie Village and Corinth shopping centers

July, 1998  *  Round #6 grant awards  
-  City of Olathe requested $60,750; awarded $60,750 composting and recycling equipment  
-  Reno Construction requested $180,722; awarded $100,000 wood waste processor

July, 1998  *  Kallevig dump site remediation completed, report to KDHE on $110,000 grant

July 27, 1998  *  Citizens Visioning Committee Meeting - BOCC work session on EAC set for October 22, 1998

July 31, 1998  *  JCED awarded $43,800 for HHW grant for roof and can crusher

September 16, 1998  *  SWMC Meeting

November, 1998  *  Asphalt Sales started receiving C/D waste

January 20, 1999  *  SWMC Meeting--Canceled until February 17  
-  SWMP Review

January 20 & 21, 1999  *  Governor’s Solid Waste Grants Advisory Committee  
-  Round 7 Plan Implementation Grants--review

February 17, 1999  *  SWMC Meeting  
-  SWMP Review

February 25, 1999  *  Johnson County Landfill phase 3 expansion - SWMP Consistency

March, 1999  *  Olathe reported that Hy-Vee has discontinued its drop-off center (glass, tin, newsprint and corrugated).

April 1, 1999  *  KDHE held public hearing at Shawnee Library for JCL Phase III permit amendment and asbestos and waste tire monofill

August 5, 1999  *  County accepts $83,440 HHW grant from KDHE

August 18, 1999  *  SWMC Meeting

October 23, 1999  *  Johnson County Landfill tour
November 11, 1999  * O'Donnell and Sons C/D landfill expansion - SWMP Consistency

* BOCC Proclamation - America Recycles Day (11-15-99)

November 18, 1999  * BOCC resolution authorizing JCED discretionary authority for solid waste disposal area and process facility - SWMP Certification

February 16, 2000  * SWMC Meeting
  - SWMP Review

Spring 2000  * Donahue Recycling Program in Shawnee Mission Schools

June 16, 2000  * New state regulations in effect for HHW

June, 2000  * Governors Solid Waste Grants Advisory Committee
  - Round 9 Solid Waste Management Plan Implementation Grants

June 21, 2001  * SWMC Meeting

September 20, 2000  * SWMC Meeting
  - Sunflower Army Ammunition Plant

April, 2001  * County-wide waste tire collection program
  - Eight collection sites
  - Olathe Transfer Station
  - Lenexa Transfer Station
  - Shawnee Public Works
  - Mission Public Works
  - Merriam Public Works
  - Overland Park/Blue Valley Shop (Leawood and Overland Park)
  - Johnson County Fairgrounds (Edgerton, Gardner, Spring Hill, and Johnson County Public Works)
  - De Soto (De Soto and Johnson County Public Works)

May 16, 2001  * SWMC Meeting
  - SWMP Five-Year Review

August 15, 2001  * SWMC Meeting
  - Review First Draft of Revisions to SWMP

August 28, 2001  * SWMC Meeting
  - Committee Approved Five-Year Review

September 13, 2001  * Five-Year Review documents submitted to the BOCC, including a resolution to set public hearing for November 1, 2001.

November 1, 2001  * Public hearing held at the BOCC meeting. BOCC unanimously approved the Five-Year Review.
November 28, 2001 * Five-Year Review with the five-year worksheet and certification of BOCC approval, Resolution No. 094-01, was mailed to KDHE.

January 2, 2002 * Cindy Kemper begins as the new Director of the Johnson County Environmental Department.

April, 2002 * JCED website launched. SWMC agenda and meeting minutes part of the website under the Solid Waste Management Program.

July 17, 2002 * SWMC Meeting
- Bill Bider, Director, KDHE-BWM, addressed the committee on state issues dealing with solid waste; Mike Clagett discussed new changes with Deffenbaugh's curbside recycling program.

September 21, 2002 * Five-Year Review with the five-year worksheet approved by KDHE.
- Next annual review of the Plan to be approved by the BOCC and submitted to KDHE by October 1, 2003.

October 16, 2002 * SWMC Meeting
- Annual review of the Plan began; update provided on expansion of Johnson County Landfill; more information presented on Deffenbaugh's curbside recycling program.

October 19, 2002 * SWMC tour of the Johnson County Landfill and the Materials Recovery Facility in Wyandotte County.

December 2002 * All SWMC vacancies are filled - 15 members total.

February 19, 2003 * SWMC Meeting
- SWMP annual review discussion; Lisa Danbury, MARC, discussed e-waste recycling.

May 14, 2003 * SWMC Meeting
- Annual review of Plan completed and recommendation made to Board for adoption by resolution; KDHE-BOW addressed JCL deep well permit; KDHE-BWM addressed waste tires and composting.

August 20, 2003 * SWMC Meeting
- Sunflower Army Ammunition Plant cleanup presentation and discussion presented by representatives from the U.S. Army, KDHE, and EPA; the Johnson County Park and Recreation District provided information on park development at Sunflower; Johnson County Landfill update was provided by JCED.

August 28, 2003 * BOCC unanimously approved 2003 Annual Review of Plan per Resolution No. 067-03.
October 29, 2003  * SWMC Meeting  
  - Surplus Exchange presentation by the Executive Director; overview of proposed revisions to the County’s Solid Waste Code presented by JCED; Johnson County Landfill update by JCED.

February 11, 2004  * SWMC Meeting  
  - Deffenbaugh Materials Recovery Facility presentation by Mike Clagett; overview of proposed revisions to the County’s Solid Waste Code and the county-wide plan for household hazardous waste collection was presented by JCED.

May 12, 2004  * SWMC Meeting  
  - Kansas City, Missouri’s RecycleFirst, (later changed to KC Recycles in November 2004) program presented by the KCMO Department of Environmental Management; review and update the County’s Solid Waste Management Plan; Johnson County Landfill update by JCED.

June 9, 2004  * SWMC tour of the Sunflower Army Ammunition plant led by U.S. Army officials.


August 11, 2004  * SWMC meeting  
  - KDHE Bureau of Waste Management solid waste review presented by Bill Bider, Director; sewage sludge update; MARC report on bi-state solid waste issues.

October 1, 2004  * SWMC tour of Deffenbaugh Industries Material Recovery Facility led by Mike Clagett.

October 13, 2004  * SWMC Meeting  
  - MARC presentation by Lisa Danbury, District Planner; legislative update and Johnson County landfill update by JCED.

March 17, 2005  * BOCC approved the Johnson County Landfill Phase 6 expansion certification for consistency with the County SWMP.

April 13, 2005  * SWMC Meeting  
  - Election of Chair and Vice-Chair; Johnson County Wastewater presentation on biosolids study; initial revision of the annual Plan review and update for 2005; MARC report on regional solid waste issues, legislative update, and Johnson County Landfill update by JCED.

June 17, 2005  * SWMC tour of the Johnson County Landfill including installation of geocomposite liner for Phase 5, stage C and the Phase 6 expansion and the Deffenbaugh Recycling in Wyandotte County
Appendix M  Johnson County Chronology

July 13, 2005  * SWMC Meeting
   - KDHE Bureau of Waste Management solid waste review presented by Bill Bider, Director; Committee approval of annual Plan review and update; Plan 5-year revision discussion, illegal dumping issues, Johnson County Landfill update by JCED.

October 12, 2005  * SWMC Meeting
   - BOCC approval of 2005 annual Plan review and update; review of the comprehensive Plan 5-year revision; presentation of the APAC-Reno C/D landfill odor issues; and the C/D Recycles of Wichita, Kansas facility presented by JCED.

December 2005  * MARC solid waste survey results

January 11, 2006  * SWMC Meeting
   - Election of Chair and Vice-Chair;
   - Regional solid waste planning issues presentation by Lisa Danbury, MARC; APAC-Reno C/D landfill odor issues; Johnson County Landfill update; and legislative update presented by JCED.

April 12, 2006  * SWMC Meeting
   - Planning steps for the major rewrite of the SWMP including RFP for waste characterization, MARC recycling survey form and solid waste flow map; APAC-Reno C/D Landfill odor issues; Sunflower Army Ammunition Plant update presented by JCED.

May 31, 2006  * Selection of Engineering Solutions and Design, Inc. (ESD) as the waste characterization generation contractor for the major rewrite of SWMP.

June 14, 2006  * SWMC Meeting
   - SWMP major revision; approval of 2006 SWMP annual review and update; E-waste recycling activities; household hazardous waste update; and Johnson County Landfill update presented by JCED.

June 28, 2006  * MARC Solid Waste District Management Board approval of funding request for $28,900 to assist with Johnson County’s waste characterization study.

August 9, 2006  * SWMC Meeting
   - Annual update on State solid waste activities by Bill Bider, KDHE; update on new SWMP development.

September 16, 2006  * Johnson County E-waste recycling event held at the JCED Sunset Building with Surplus Exchange.

September 29, 2006  * SWMC tour of the Johnson County Landfill, Deffenbaugh Recycling Facility, and the Mill Creek Regional Wastewater Treatment Plant.
October 11, 2006  * SWMC Meeting  
- Regional solid waste issues by Lisa Danbury, MARC; new SWMP updates; update on the Johnson County waste characterization study in progress conducted by Engineering Solutions and Design (ESD).

October 9-10; October 12-13  * Johnson County waste sort, characterization, and generation study conducted by ESD at APAC-Reno C/D landfill, Johnson County Landfill, and the Olathe Transfer Station.

October 16-20, 2006  
- Johnson County waste sort, characterization, and generation study conducted by ESD at APAC-Reno C/D landfill, Johnson County Landfill, and the Olathe Transfer Station.

December 13, 2006  * SWMC Meeting  
- Presentation of the Johnson County waste sort, characterization, and generation study results by Jack Chappelle, ESD; new SWMP update.

December 27, 2006  * Selection of Franklin Associates to develop new SWMP.

February 14, 2007  * SWMC Meeting  
- Election of Chair, Vice-Chair; service awards; BOCC changes to committee appointment processes; SWMC By-Laws; SWMP update by Franklin Associates; APAC-Reno C/D landfill expansion permit modification.

March 27, 2007  * Ad-hoc solid waste stakeholder group meeting on the new SWMP, discussing orientation and current waste management system.

April 11, 2007  * SWMC Meeting  
- SWMP data collection and stakeholder group findings; SWMC By-Laws; Johnson County Landfill update.

April 19, 2007  * Second ad hoc solid waste stakeholder group meeting on the new SWMP discussing future waste reduction options.

May 17, 2007  * Third ad hoc solid waste stakeholder group meeting on new SWMP discussing future waste disposal and county/city rate options.

June 13, 2007  * SWMC Meeting  
- Service award; Johnson County waste characterization report by Jack Chappelle, ESD; SWMP stakeholder group report, plan development, and adoption schedule; E-Waste collection services.

July 11, 2007  * SWMC Meeting  
- New SWMP residential waste diversion goals and strategies.

July 19, 2007  * BOCC Work Session – New SWMP presentation to BOCC by Franklin Associates.
August 8, 2007  
* SWMC Meeting  
  - Review of Work Session with BOCC on SWMP;  
  - Discussion on new SWMP waste diversion goals and  
    strategies for commercial and C/D debris;  
  - Review of draft residential waste diversion goals and  
    strategies for new SWMP.

September 12, 2007  
* SWMC Meeting  
  - New SWMP solid waste disposal in Johnson County,  
    waste disposal options, residential waste diversion and the  
    County role, draft commercial and C/D waste reduction, and  
    the schedule of SWMP completion.

September 28, 2007  
* JCED review and discussion of new SWMP with the Johnson  
  County Legal staff.

October 3, 2007  
* New SWMP presentation to City Administrator Group and  
  Council of Mayors by Cindy Kemper, JCED Director.

October 10, 2007  
* SWMC Meeting  
  - New SWMP presentation to the SWMC.

October 18, 2007  
* New SWMP review and discussion with KDHE by JCED and  
  Franklin Associates.

October 23, 2007  
* New SWMP presentation to Ad-Hoc Solid Waste Stakeholders  
  Group.

October 25, 2007  
* New SWMP presentation to BOCC.

November 7, 2007  
* Public Hearing on new SWMP at Sunset Office Building.

November 14, 2007  
* SWMC Meeting  
  - Recommendation for approval of new SWMP to BOCC.

December 13, 2007  
* New SWMP Adoption by BOCC Resolution.

January 3, 2008  
* Submittal of approved Plan to KDHE.
APPENDIX N

JOHNSON COUNTY BOARD OF COUNTY COMMISSIONERS
ADOPTION RESOLUTION NO. 090-07
A MEETING OF THE BOARD OF COUNTY COMMISSIONERS OF
JOHNSON COUNTY, KANSAS, HELD THURSDAY, DECEMBER 13, 2007

A regular meeting of the Board of County Commissioners of Johnson, Kansas,
was held on Thursday, December 13, 2007, with the following members being present
and participating, to-wit:

Chairman Annabeth Surbaugh
Commissioner C. Edward Peterson
Commissioner John P. Segale
Commissioner David A. Lindstrom
Commissioner Ed Eilert
Commissioner Douglas E. Wood
Commissioner John M. Toplikar

WHEREUPON, there came before the BOCC for consideration the adoption of a
new solid waste management plan for Johnson County, Kansas; and

WHEREUPON, the BOCC, after thorough discussion and careful deliberation of
the matter, upon a motion duly made, seconded and carried, adopted the following
Resolution, to-wit:

A RESOLUTION TO ADOPT A NEW
SOLID WASTE MANAGEMENT PLAN FOR JOHNSON COUNTY, KANSAS

Resolution No. 090-07

WHEREAS, the BOCC has the authority, pursuant to K.S.A. 65-3401 et seq., to
adopt a solid waste management plan for Johnson County, Kansas;

AND WHEREAS, on or about December 4, 1972, the BOCC adopted a solid
waste management plan pursuant to County Resolution No. 654-72 (hereinafter “1972
Plan”);
AND WHEREAS, on or about July 27, 1995, the BOCC adopted a new solid waste management plan pursuant to County Resolution No. 070-95 (hereinafter "1995 Plan"), which superseded and replaced the 1972 Plan;

AND WHEREAS, from time to time the BOCC adopted certain amendments to the 1995 Plan, which amendments occurred on March 14, 1996, by the adoption of Resolution No. 025-96; and November 1, 2001, by the adoption of Resolution No. 094-01; and August 28, 2003, by the adoption of Resolution No. 067-03; and July 29, 2004, by the adoption of Resolution No. 065-04; and August 25, 2005, by the adoption of Resolution No. 072-05; and August 31, 2006, by the adoption of Resolution No. 076-06;

AND WHEREAS, K.S.A. 65-3405 provides that at least every five (5) years the solid waste management committee shall comprehensively evaluate the adequacy of the county’s existing solid waste management plan, with respect to the statutorily imposed criteria set forth in K.S.A. 65-3405(j);

AND WHEREAS, in accordance with statutory requirements, the solid waste management committee has reviewed the existing plan pursuant to the statutory criteria, and has recommended that the BOCC adopt a new solid waste management plan for Johnson County, Kansas, which plan shall be known as the Johnson County Solid Waste Management Plan, 2007 Edition (hereinafter “2007 Plan”);

AND WHEREAS, K.S.A. 65-3405 further provides that the BOCC shall at least every five (5) years hold a public hearing regarding the county’s solid waste management plan for the purpose of, among other things, reviewing the projected solid waste management practices and needs for a 10-year planning period;
AND WHEREAS, on November 7, 2007, the BOCC held a public hearing regarding the proposed adoption of the 2007 Plan;

AND WHEREAS, having held a public hearing, and having reviewed the record and submitted evidence, comments and testimony concerning the proposed 2007 Plan, and having thoroughly discussed the subject matter, the BOCC believes it is in the best interest of the public’s health, safety and welfare that it adopt the 2007 Plan in order to provide for a more integrated management of solid waste in Johnson County, Kansas;

IT IS, THEREFORE, HEREBY RESOLVED by the Board of County Commissioners of Johnson County, Kansas, that:

1. **ADOPTION OF 2007 PLAN.** The BOCC hereby adopts the 2007 Plan (a copy of which is attached hereto as “Exhibit A” and incorporated herein by reference), as the solid waste management plan for Johnson County, Kansas.

2. **SECRETARY OF KDHE.** Upon adoption of this Resolution, a copy of the 2007 Plan shall be forwarded to the Secretary of the Kansas Department of Health and Environment (hereinafter “Secretary”), for such person’s review and final written approval.

3. **EFFECTIVE DATE.** The 2007 Plan shall become effective immediately upon (i) the adoption and publication of this Resolution once in the official county newspaper; and (ii) the Secretary’s final written approval of the 2007 Plan.

4. **PREVIOUS RESOLUTIONS.** This Resolution, and the 2007 Plan, supersede any prior resolutions and plans regarding solid waste management planning, to the extent that any prior resolution or plan is inconsistent or in conflict with the 2007 Plan.
and any amendments thereto, in which event those prior provisions shall be, and hereby are repealed.

5. **COPIES OF THE 2007 PLAN.** Copies of the 2007 Plan shall be available to the public for review at (i) the Office of the Clerk of the Board of County Commissioners, 111 South Cherry Street, Suite 3300, Olathe, Kansas 66061-3486; and (ii) the Johnson County Environmental Department, 11811 South Sunset, Suite 2700, Olathe, Kansas 66061. Hours are from 8:00 a.m. to 5:00 p.m., Monday through Friday.

6. **PUBLICATION.** A copy of this Resolution shall be published once in the official county newspaper. The attached "Exhibit A", however, need not be published, as it is on file for public inspection at the locations designated above.


BOARD OF COUNTY COMMISSIONERS
OF JOHNSON COUNTY, KANSAS

[Signature]
Annabeth Surbaugh, Chairman

Casey Fox Curl
Clerk of the Board

APPROVED AS TO FORM:

Richard J. Lind
Deputy County Counselor

SOLID WASTE MANAGEMENT PLAN
2007 EDITION

[Stamp]
APPENDIX O

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT SOLID WASTE MANAGEMENT PLAN FIVE-YEAR WORKSHEET
Solid Waste Management Plans
Five-Year Worksheet

Instructions:
Complete this worksheet and submit it with any attachments, including additional revisions to the county or regional solid waste management plan, documentation of the public hearing, planning review, copy of the adoption resolution(s) and list of the current solid waste management committee members to the Bureau of Waste Management. In the case of regions, the adoption resolution of each county commission must be submitted. Answers may be written directly on this worksheet or incorporated into an updated copy of the plan; additional sheets may be used if necessary.

County or Region Name: (If this is a regional update, please list all counties within the region.)
Johnson County, Kansas

Have the population, industries, utilities, transportation patterns, air, land or water use changed? If so, how has this affected solid waste management in the planning area? What changes are expected to occur over the next ten-year planning period? Explain.

Johnson County’s population has increased 12 percent between 2000 and 2005 (2.44 percent average annual change). This growth equals an annual increase of approximately 11,000 people per year. Currently, there are over 506,500 residents with over 96 percent living within incorporated city limits.

A 17 percent population growth is forecast for 2010 to 2020, followed by a 14 percent growth the following decade.

Total housing units increased by over 25,600 between 2000 and 2005 (or 14 percent). In 2005, eighty percent of the housing units were households with four or less units per structure.

The number of employees working in the county increased ten percent between 2000 and 2004. The largest gains were in the finance, insurance, real estate, and rental and leasing category; the professional, scientific, management, administrative, and waste management services category; and the other services category. The transportation, warehousing, and public utilities category experienced the largest decline in employment.

Employment is forecast to grow in Johnson County, with the most rapid growth in the College Boulevard/Blue Valley areas. By industry sector, the service industries will continue to employ the most workers.
Since both population and employment are growing, the amount of solid waste generated will increase as well. As a result, the 2007 SWMP calls for the County to assume a more centralized role to facilitate waste reduction. See Chapter 10 of the 2007 SWMP for recommended measures, strategies, and implementation schedules.

**What is your current method of disposal of municipal solid waste?**

Landfill – The majority of municipal solid waste is landfilled within the county at the Johnson County Landfill, Inc. located in the city of Shawnee, Kansas.

Transfer station – One city, Olathe, representing about 22 percent of the population, has a transfer station. Solid waste is transferred to the Hamm Quarry Landfill in Jefferson County, Kansas.

At least one private hauler operating in the County delivers solid waste to a transfer station in Missouri for disposal in a Missouri landfill.

Direct haul – With the exception of Olathe and residents choosing to self-haul, solid waste is hauled by licensed haulers.

Other: __________________________

**Is this disposal method expected to be in place for the next ten years? If not, what changes are planned?**

It is anticipated that the Johnson County Landfill, Inc. will be available for the next ten years. However, the landfill will close no later than 2027 under an agreement with the city of Shawnee.

Currently, the anticipated life span of the Hamm Quarry Landfill is over 70 years. According to representatives of the Hamm Quarry Landfill, the current rate of disposal at the landfill (1,200 tons per day) can be expanded.

The 2007 Johnson County SWMP (Chapter 10) outlines aggressive waste reduction and diversion programs intended to reduce the amount of solid waste requiring disposal in the future. Chapter 10 also identifies the need for detailed feasibility studies to determine the viability of new or expanded solid waste management facilities to serve the county once the Johnson County Landfill, Inc. closes.

**Have there been any changes in the collection, transportation, storage and/or processing of municipal solid waste since the plan was written or last updated? Are changes in this system anticipated during the ten-year planning period?**

The 2007 SWMP Appendix M Chronology details solid waste management issues addressed by the solid waste management committee from 1972 to the present. Chapter 3 of the 2007 SWMP describes the current solid waste management system in the County.
Recycling

Approximately 96 percent of county residents living in single-family homes have access to curbside recycling.

In 2007, the Overland Park recyclable materials drop-off facility at 79th and Metcalf was closed, and a new drop-off facility was opened at 11921 Hardy. A description of this site and the materials accepted can be found on page 3-14 of the 2007 SWMP.

The recycling division of Deffenbaugh Industries, Inc. has announced plans to site additional bins at commercial establishments, including multi-family apartment complexes. They will also start accepting additional materials such as plastic and aluminum from existing as well as new commercial customers.

The County anticipates adding residential electronics recycling at their household hazardous waste collection facility starting in 2008.

Disposal

In 2007, Johnson County Landfill, Inc. began liner construction on Phase 6 – the final permitted disposal area at the landfill. The Phase 6 area is expected to begin accepting waste in January or February, 2008 and has about 15 years of lifespan at current disposal rates.

On December 21, 2007, the Johnson County Landfill, Inc. changed ownership. All assets were acquired by DLJ Merchant, the private-equity investment arm of Credit Suisse. It is anticipated that there will be no interruption or major changes in solid waste services in the county due to the change in ownership, in the immediate future.

Anticipated upgrades to the County’s Middle Basin wastewater treatment plant will provide for an in-county disposal option for grease trap/interceptor waste from the county’s restaurants and food manufacturers.

Are solid waste disposal services available to all residents and businesses in the planning area?

All of the households and businesses in the incorporated areas of the County have access to solid waste collection service either through city provided service or through direct contracts with private firms.

Has there been any change in the location, number, ownership or distribution of solid waste facilities subject to state permit requirements under K.S.A. 65-3407?

On December 21, 2007, the Johnson County Landfill, Inc. changed ownership. All assets were acquired by DLJ Merchant, the private-equity investment arm of Credit Suisse. It is anticipated that there will be no interruption or major changes in solid waste services in the county due to the change in ownership, in the immediate future.

APAC- KS (APAC-Reno C/D landfill) was purchased by Oldcastle, Inc in 2006. No apparent landfill operational changes have occurred due to this ownership change.
Has there been a change in the sources, quantity or composition of solid waste generated within the planning area? (Waste characterization models are available from the Bureau of Waste Management)

On December 31, 2006, the Forest View Landfill located in KCK, Wyandotte County was closed. During 2007, the Forest View Landfill waste stream of about 1,400 tons per day was hauled to the Johnson County Landfill, Inc. (about 700 tons/day) and Courtney Ridge Landfill (about 700 tons/day) in Missouri.

In early 2007, Holland Corporation received a permit modification for C/D landfill expansion of Phases 2-5 located at 23775 West 159th Street, Olathe, KS.

In the fall of 2006 and spring of 2007, Johnson County and the Mid-America Regional Council funded a series of waste sorts at the Johnson County Landfill, Inc., the Olathe Transfer Station, and the APAC-Reno construction and demolition debris landfill. The most common materials being disposed of at the Johnson County Landfill, Inc. and the transfer station were paper, plastic, food waste, and yard waste. Further details can be found in the final solid waste analysis report and appendices at http://jced.jocogov.org/solid_waste/swmc/sw_mgmt_plan.htm.

Johnson County residents dispose of an estimated 4.735 pounds of MSW per person per day. Through recycling and composting, they recover an estimated 1.382 pounds per person per day. MSW generation (disposal plus recovery) equals 6.12 pounds per person per day.

In addition to MSW, construction and demolition debris and other wastes disposed are estimated at 2.89 and 0.40 pounds per person per day, respectively. Therefore, total solid waste disposed by Johnson County residents is an estimated 8.02 pounds per person per day. See Chapter 5 of the 2007 SWMP for further details.

Please check and provide a brief description of those areas which have experienced significant change since the current plan was written. Review the Five-Year Update Guide for assistance in determining possible changes. Please attach additional sheets if necessary.

_____ City and county responsibilities for solid waste systems

County waste management administration is addressed in Chapter 1, page 1-8 and Chapter 2, page 2-3 of the 2007 SWMP. Future County role and operations in solid waste management are discussed in Chapter 10, page 10-7 of the 2007 SWMP.

The strategies related to the County’s role fall into three areas: (1) aggressively educate, promote and implement recycling, composting, and source reduction in close cooperation and coordination with cities, homeowners associations and the private sector, (2) further investigate and recommend the best options for disposing of waste after the closure of the Johnson County Landfill, Inc., and (3) lead by example by implementing aggressive waste reduction within County government operations.

_____ Local provision for regulation of solid waste management

City ordinances and codes are discussed in Chapter 2 of the 2007 SWMP.
_____ Schedules and/or strategies for reduction of solid waste volume in the planning area
(public and private)
_____ Recycling programs
_____ Composting programs
_____ Source reduction/reuse

Chapter 10 of the 2007 SWMP lays out future solid waste management system
recommendations, strategies, and implementation schedules for residential and
commercial recycling, composting, and source reduction programs. The 2007 SWMP
also recommends that solid waste reduction be measured annually by estimating per
capita disposal rates.

_____ Public education efforts related to waste management

The Mid-America Regional Council (MARC) completed a citizen survey in December
2005 that was used to establish solid waste management priorities for Johnson County
and the larger Kansas City region. Also as a result of that survey, MARC created Recycle
Spot – a searchable online database of area recyclers and the materials each recycler
accepts.

Johnson County worked with KDHE to develop “Kansas Don’t Spoil It” posters to
promote the County’s Household Hazardous Waste Collection facility and to promote
recycling at the Johnson County Community College.

County staff developed an animated video “Buddy the Recycler” along with various
materials to distribute to school children promoting recycling along with hazardous
materials awareness around the home. Numerous school presentations have been made
including staff dressed in a Buddy outfit.

_____ Assessed valuation, cost and ability to fund the solid waste system

Implementing the recommendations in the 2007 SWMP will require commitment of
additional County resources. It is anticipated that two new full time employees will be
needed at an estimated annual cost of $100,000 each (this includes salary, fringe benefits,
supplies, computers, vehicle use, etc.). One of the new employees will perform
educational and outreach functions with citizens, businesses, cities, and homeowners
associations; the other will be responsible for more technical work such as measuring and
reporting progress towards achieving goals, developing model documents, and managing
surveys and feasibility studies through contractors.

An annual educational budget of $20,000 to $40,000 for development and
implementation of an educational campaign will be needed starting in 2009.

Surveys and feasibility studies will require assistance from outside consultants. These
studies, spaced over the twenty year planning horizon, will cost as little per study as
$5,000 to gather confidential private sector recycling data to over $75,000 to conduct
feasibility studies of potential disposal options. Several of these studies could be active in
any given year. The County needs to budget at least $100,000 per year for outside consulting services.

Total annual County resource needs are estimated at around $340,000. These costs do not include any land acquisition, design, construction or operational costs associated with providing any new or expanded waste management services in the county.

Have any new management programs or disposal options been initiated or have previously existing programs or disposal options been eliminated for any of the special wastes in the list below? Please check those special wastes where management practices have changed since the last update along with a brief description. Please attach additional sheets if necessary.

- Lead acid batteries – no change
- Household hazardous waste – no change
- Small quantities of hazardous wastes (less than 55 lbs./month, see K.A.R. 28-31-2(e)) – no change
- White goods (cfc evacuation required) – no change
- Pesticides and their containers – no change
- Used oil – no change

- √ Consumer electronics

The County anticipates starting residential consumer electronics collection at the County household hazardous waste facility in 2008. During 2007, the city of Olathe started accepting some electronic waste from residents at their household hazardous waste facility.

- √ Medical wastes

EnServe Midwest purchased Deffenbaugh’s Engineering Recovery System (ERS) medical waste company in 2006. EnServe obtained approval of new medical waste transfer station at 200 Funston Rd, KCK in November, 2006. EnServe Midwest continued to operate a medical waste transfer station at the JCL until mid-2007. DII continues to permit a medical waste transfer station at the JCL for 2008 but is not currently operating the transfer station.

- √ Construction and demolition wastes

APAC-Reno C/D landfill initiated a new management program in August, 2005 to complete and operate new corrective measures to control and prevent H2S and methane gas at the landfill.

- Seasonal cleanup wastes – no change
- Natural disaster wastes – no change

- √ Yard wastes

Several homeowners associations have started requiring separate curbside collection and composting of residential yard waste.
In 2007, city of Olathe initiated a new program for separate collection of yard waste for residential curbside collection. Yard waste is collected in biodegradable bags at curbside or self hauled to the Olathe-Hamm Quarry transfer station or to Olathe’s closed MSW landfill site.

- Industrial wastes – no change
- Agricultural wastes – no change
- Abandoned/Junked automobiles – no change
- Waste/scrap tires – no change
- Bulky or other wastes requiring special handling: describe

With this worksheet, please attach:

**An update of the implementation schedule and timeline.** The timeline should include significant solid waste system benchmarks for a ten-year period. At a minimum, the schedule should include annual reviews and five-year updates of the plan (note review due dates will be reset with the approval of this update). It is useful to include disposal capacity issues, contract renewals and projected program enhancements or closures in the schedule. Assign any necessary action steps and indicate the party responsible for completion.

See Chapter 10 of the 2007 SWMP.

**A current membership list of the Solid Waste Management Committee,** including the name, entity represented, address, telephone number and e-mail (if available) for each member.

See Appendix H of the 2007 SWMP.

**Documentation of the public hearing,** this may be either proof of publication of the notice in the official newspaper of the county(ies) or minutes of the meeting.

See Appendix K of the 2007 SWMP.

**Planning review** from an appropriate official land-use planning agency for consistency between the solid waste management plan and other comprehensive plans covering the county or region. Please note the name of the planning agency reviewing the solid waste plan and when it was provided. Any comments from the selected planning agency should be forwarded to KDHE. Examples of possible planning review agencies include: planning and zoning departments, conservation or watershed districts, RC&D’s, economic development agencies or any organization or agency within the planning area involved in comprehensive land-use planning.

See Appendix L of the 2007 SWMP.
Section B: This section of the worksheet is recommended, but not required

What is the county/region’s recycling and/or waste diversion goal, if any?

The 2007 SWMP establishes a targeted MSW recovery rate that, at a minimum, exceeds the national average. The national MSW recovery rate average in 2005 was 32 percent.

Were benchmark measurements of recycling and/or diversion taken when planning began? If so, what was the recycling and/or diversion rate at that time?

The 2007 SWMP establishes the benchmark generation, recycling, and disposal estimates. Per capita rates will be tracked annually for generation, recycling, and disposal. The recycling rate (as a percentage) will be calculated from the per capita rates.

What is the current recycling and/or diversion rate? How was this determined?

The 2005 residential and commercial MSW recycling rates were estimated at 15.2 percent and 30.4 percent respectively. The total MSW recycling rate (residential and commercial) was estimated at 22.6 percent (see Chapter 6, Table 6-3).

Johnson County specific data were collected from local governments and private recycling and disposal industry representatives. Data from one private solid waste hauler were not provided. The County’s consultant covered this data gap by applying a per capita factor based on Olathe residential data times the population served by that hauler.

The amount of recycled appliances and other bulky wastes was also identified as a data gap. Scrap dealers handling these products do not track MSW type products separately from other sources of scrap such as metal recovered from industrial clients or from the demolition of buildings. Estimates of recycled appliances and other bulky wastes in Johnson County were projected from national per capita factors.

Is there breakdown information available on what is currently being recycled and/or diverted? What kind of record-keeping is taking place?

Since recycling in Johnson County is provided by the private sector, recyclable materials data obtained for the development of the 2007 SWMP were aggregated to protect confidentiality. Table 5-3 on page 5-5 of the 2007 SWMP displays residential recycling separate from commercial recycling for four categories – recyclable materials, yard waste collected for composting, appliances, and other bulky wastes.
Updating these recycling estimates in the future will depend on the willingness of the private sector to provide data to the County.

Has any work been done since initial planning to record and target significant waste streams in the county/region? If so, what wastes have been noted as significant and what is being done to target them for diversion?

The 2006-2007 waste sorts commissioned by the County and MARC identified paper, plastics, food waste and yard waste as the top materials being disposed by Johnson County solid waste generators. The 2007 SWMP specifically targets yard waste to divert from disposal to composting. Some homeowners associations have begun requiring residential yard waste to separated at the curbside and collected for composting. The major strategy in the SWMP to increase diversion of paper and plastics is education and outreach, followed by implementation of volume-based residential trash collection rates.

During 2008, the County will begin accepting residential electronic waste at its Household Hazardous Waste Collection Facility. The city of Olathe began accepting some residential electronic waste at their household hazardous waste facility during 2007.

The 2007 SWMP also acknowledges a lack of diversion opportunities for construction and demolition waste. However, additional information needs to be collected prior to targeting this waste stream for reduction.

Are business and/or industry participating in recycling, composting, or other waste diversion programs? Does the county/region offer services to this sector?

The recycling rate for commercial municipal solid waste is significantly higher than it is for residential waste (30.4 percent versus 15.2 percent). The principal reason is that commercial waste is dominated by high value paper products such as corrugated containers, printer waste, and office paper, which generators are willing to collect for recycling to lower their solid waste disposal quantities (and costs).

Many private solid waste haulers and recyclers collect commercial municipal solid waste for recycling and compete with each other for business on the basis of cost and service. Recently, the recycling division of Deffenbaugh Industries, Inc. expanded recycling services to commercial and multi-family dwelling units. The County does not provide commercial recycling services.

Has consideration or research been given to any of the following programs: Pay-as-you-throw? See below Full-cost accounting? No research has been conducted.
The following is the section of Table 10-1, pages 10-2 and 10-3 that addresses volume-based waste collection rates (pay-as-you-throw), the strategies for implementation, and the implementation schedule.

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<td>Implement volume-based waste collection rates that increase recycling and reduce waste destined for disposal</td>
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<td>➢ Develop &amp; distribute educational materials about volume-based collection programs</td>
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<td>➢ Work with private sector to identify and overcome barriers</td>
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<td>➢ Evaluate volume-based rate programs in place elsewhere and develop a workable template for the county</td>
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<td>➢ Develop support among cities &amp; homeowners associations for volume-based collection programs</td>
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<td>➢ Develop &amp; distribute model ordinance, contract, &amp; licensing language to cities &amp; homeowners associations that imposes volume-based collection rates</td>
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<td>➢ Implement a countywide roll-out of volume-based collection rates in close coordination and consultation with cities, homeowners associations and private sector</td>
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Is the county participating in any waste management regions or partnerships? If so, is the arrangement successful and efficient? If not, should one be pursued?

Johnson County works cooperatively with the Mid-America Regional Council (MARC) on solid waste issues. The MARC Solid Waste Management District (SWMD) is a regional solid waste planning agency for local governments in Cass, Clay, Jackson, Platte, and Ray counties in Missouri and, in addition to Johnson County, works cooperatively with Leavenworth, Miami, and Wyandotte counties in Kansas. In 2006 and 2007, the MARC SWMD and Johnson County worked together to fund a waste sort at three Johnson County solid waste disposal facilities. The 2007 SWMP recommends that the County pursue regional solid waste strategies and solutions that benefit Johnson County.

Johnson County is also a charter member in a regional by-product synergy project. The Kansas City By-Product Synergy Project applies the principles of industrial ecology in a facilitated process in which individual companies work together as a cross-industry team focused on turning by-products into valuable
new products. This project brings together representatives of industrial and governmental organizations to discuss beneficial uses of wastes generated by the project members.

Johnson County has adopted goals for the reduction of greenhouse gas (GHG) emissions that will necessitate aggressive waste reduction strategies such as those recommended in the 2007 SWMP. Johnson County Government has committed to zero waste in County operations by 2020 and implementation of a green procurement process. It is anticipated that efforts to reduce GHGs will present many more opportunities for regional collaboration.

Does the county have a contingency plan for animal carcass disposal resulting from foreign animal disease? (Assistance on carcass disposal planning is available from KDHE, (785) 296-1600)

An Application Approval letter received August 28, 2006 by Remel, Inc. stated that KDHE reviewed and approved the company’s site near 199th and Quivira as an emergency livestock disposal site. The voluntary approval process identifies a specific location on livestock operation property to dispose of their own dead animals in case of a terrorist or natural disease disaster. This approval does not include livestock mortalities from off-site locations.

Remel is the only livestock operator “of concern” in Johnson County that KDHE has identified. There have been no other burial sites approved in the county.
APPENDIX P

UTILITIES SERVING JOHNSON COUNTY

Prepared by Johnson County Environmental Department

July 2008
Utilities Serving Johnson County

Gas

KPL Gas Service, a Division of ONEOK
800-794-4780
Serves most of Johnson County
http://www.oneok.com/kgs

Atmos Energy
800-621-1867
Serves western Johnson County
http://www.atmosenergy.com

Electric

Kansas City Power & Light
816-471-5275
Serves most of Johnson County
http://kcpl.com

Westar Energy
800-794-6101
Olathe west of I-35
http://www.westarenergy.com

City of Gardner
913-856-7535
www.gardnerkansas.com

Water

Water District No. 1 of Johnson County
913-895-1800 (Serves most of Johnson County)
City of Olathe 913-971-9311
City of Gardner 913-856-7535
City of DeSoto 913-581-1182
City of Spring Hill 913-592-3624
Johnson County Rural Water District #4
Johnson County Rural Water District #6
Johnson County Rural Water District #7
Miami County Rural Water District #2

Wastewater

Johnson County Wastewater 913-715-8500
City of Olathe 913-971-9311
City of Spring Hill 913-592-3624
City of DeSoto 913-581-1182
City of Gardner 913-856-7535
City of Edgerton 913 893-6231