



JOHNSON COUNTY
KANSAS
Health & Environment

SOLID WASTE MANAGEMENT PLAN 2019 UPDATE

JULY 29, 2019

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BOCC	Board of County Commissioners
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
the County	Johnson County
C&D	Construction and Demolition
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DOPP	Downtown Overland Park Partnership
EREF	Environmental Research & Education Fund
HHW	Household Hazardous Waste
HOA	homeowner's association
JCDHE	Johnson County Department of Health and Environment
JCFPC	Johnson County Food Policy Council
K.A.R.	Kansas Administrative Regulations
KDHE	Kansas Department of Health and Environment
K.S.A.	Kansas Statutes Annotated
MARC	Mid-America Regional Council
LEDR	Landfill-Environmental-Diversion-Reclamation
LEED	Leadership in Energy and Environmental Design
MRFs	materials recovery facilities
MSW	municipal solid waste
NRDC	Natural Resources Defense Council

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
OSWER	Office for Solid Waste and Emergency Response
PCC	post-closure care
PPI	Pollution Prevention Institute
R5	Reinvest, Rethink, Reduce, Reuse, Recycle
RCRA	Resource Conservation and Recovery Act
RFIs	requests for information
SMM	Sustainable materials management
SMSD	Shawnee Mission school district
SWDA	Solid Waste Disposal Act
SWMC	Solid Waste Management Committee
SWMP	Solid Waste Master Plan
SARA	Superfund Amendments and Reauthorization Act
U.S. EPA	United States Environmental Protection Agency

LIST OF APPENDICES

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Appendix B: Summary of Recommendations

Appendix C: Stakeholder Engagement Data

Appendix D: Local Codes and Ordinances

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EXECUTIVE SUMMARY

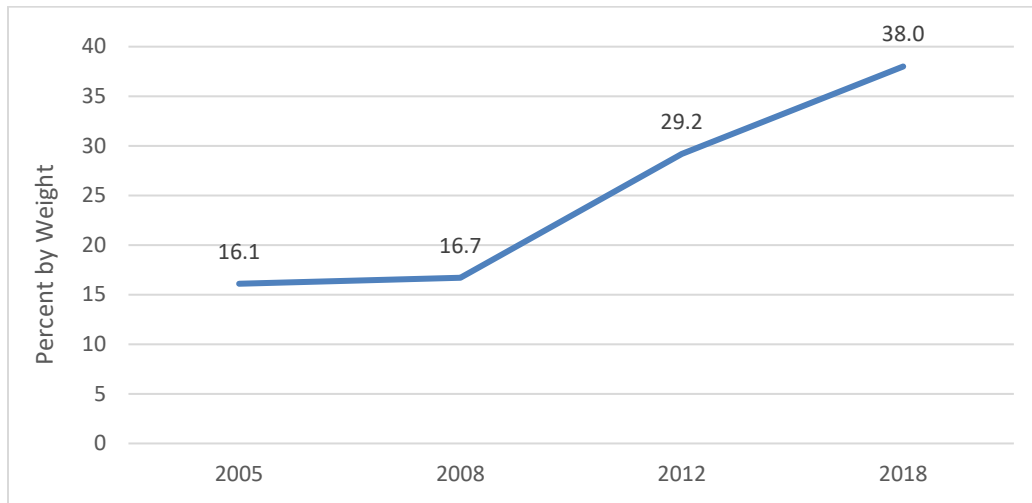
Purpose and Plan Development

The updating of Johnson County's Solid Waste Master Plan (SWMP) is required by the Kansas Department of Health and Environment (KDHE) every five years, as described in the Kansas Statutes Annotated (K.S.A.) 65-3405. In addition, it is a critical step in determining how the County will manage its solid waste over the next 25 years as the County's growth continues and market factors continue to evolve. Planning for and implementing an integrated solid waste management system is a complex and challenging endeavor requiring consideration of many factors: technological, institutional, legal, social, economic, and environmental. Furthermore, as communities pursue solutions to their solid waste management challenges, it is increasingly apparent that no single strategy, technology, or program offers a complete solution; rather, a combination of methods is needed to provide for appropriate and cost-effective management of the varying types of solid waste in accordance with the unique properties of these various solid waste stream components.

The County and its consultant, Burns & McDonnell, developed this SWMP with a focus on the next five years of implementation, understanding that it will be updated every five years. The SWMP has been developed in coordination with Johnson County Department of Health and Environment (JCDHE) staff and the Solid Waste Management Committee (SWMC). The SWMC is comprised of representatives from across the solid waste sector, representing local governments, environmental organizations, and private sector solid waste haulers, processors, and disposal facilities.

Recent Success

The County has made significant progress increasing diversion in the single-family residential sector due to educational outreach, and regulations pertaining to yard waste and universal provision of services for residential haulers. In 2018, JCDHE conducted a limited survey of household participation in curbside single-stream recycling services that identified an overall average participation rate of 83 percent. With an average of 502 pounds of single-stream recyclables per household per year, the County's current residential recycling programs are very effective, significantly higher than the state and national averages, and comparable to the top performing cities and states. Figure ES-1 presents the recycling rate over time in percent of materials by weight for single-family residential municipal solid waste (MSW). These results encourage the application of a similar strategy to support the waste minimization and diversion in the commercial sector.

Figure ES-1: Recycling Rate for Single-Family Residential MSW

Within the commercial sector, JCDHE’s green business program has expanded significantly over the last five years. JCDHE staff have supported individual organizations, as well as larger developments such as the Downtown Overland Park Partnership (DOPP), in implementing recycling and composting programs. JCDHE staff have assisted the Shawnee Mission School District with the implementation of cafeteria recycling and composting in every one of their schools and support buildings.

Priorities for 2019 SWMP Update

Understanding the recent success with increasing diversion in the single-family residential sector, JCDHE and the SWMC are turning focus on achieving similar results in the multi-family and commercial sector using proven methods of regulatory change and educational outreach. The County understands the need for relocating and expanding their household hazardous waste (HHW) facility and will beginning planning for such in 2019. JCDHE and the SWMC will provide technical guidance and encourage municipalities on multi-family residential recycling infrastructure and regulations and construction and demolition (C&D) diversion opportunities. While almost all yard waste generated in Johnson County has been diverted from the MSW landfill, no infrastructure is yet permitted to support a large-scale food waste composting program.

Overview, Goals, and Objectives

In addition to describing the purpose of the SWMP and detailing the KDHE requirements, Section 1.0 describes the stakeholder engagement process, defines key terms, and provides a guide on how to best read and utilize the analysis and recommendations included in Sections 4.0 through 11.0 of the SWMP. A summary of all recommendations is included in Appendix B.

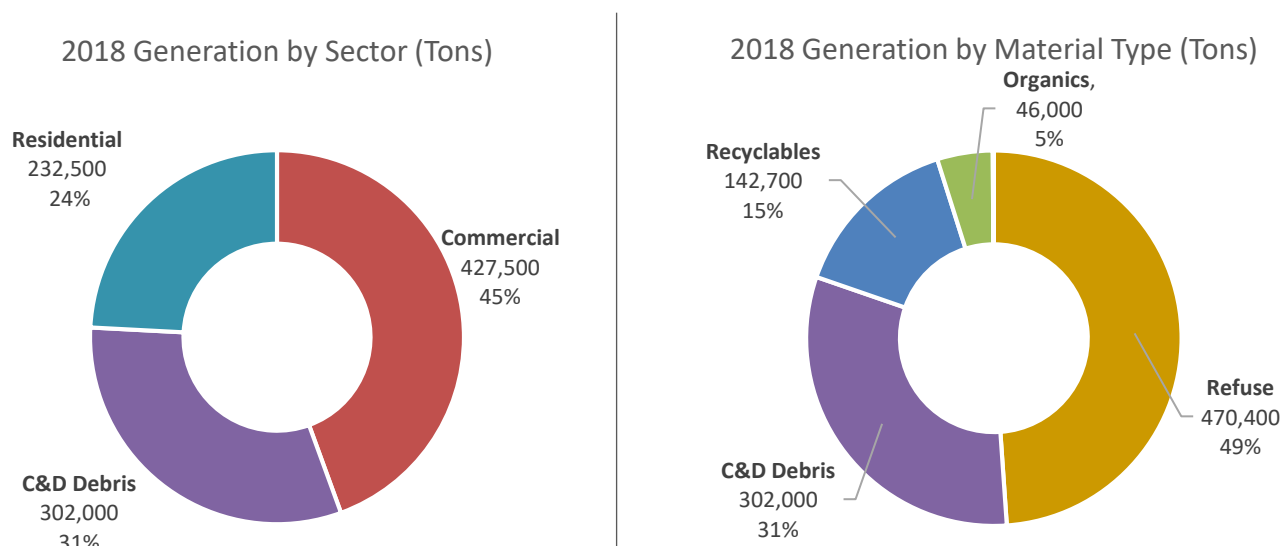
Planning Studies, Regulatory, and Trends Review

Section 2.0 provides a broad perspective of the historic and current state of the solid management environment in which the County is developing this SWMP. It provides a review of relevant existing planning studies, a summary of relevant laws and regulations, a description of the roles of governmental entities in solid waste management and summarizes recent key trends in solid waste management. The key trends provide insight on how the industry is changing, as well as efforts being implemented by communities to address associated challenges.

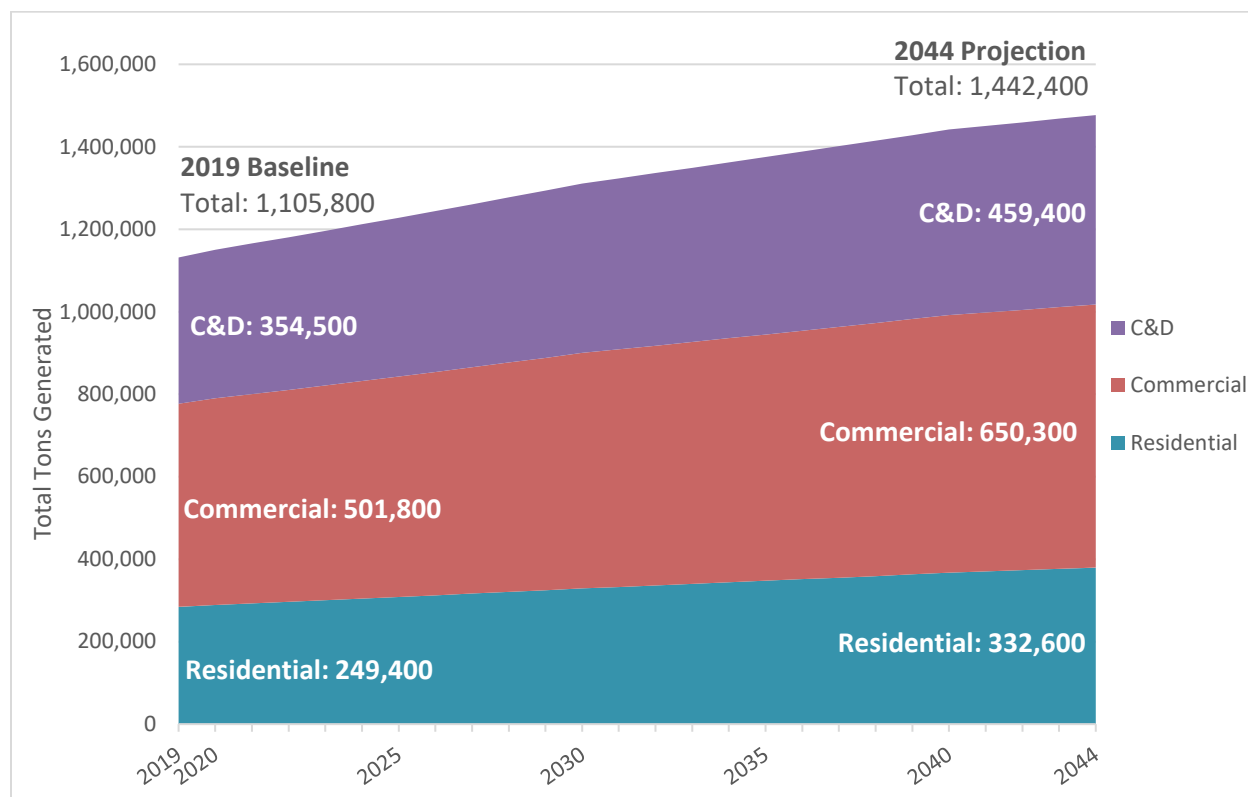
Planning Area Characteristics

To properly plan for the County's future MSW management needs, an understanding of the factors that will impact those needs is important. Section 3.0 describes the County's demographic and economic characteristics, as well as how these characteristics were applied to develop the County's current solid waste generation profile and future solid waste generation projections. Figure ES-2 provides current solid waste generation distribution in the County by sector and type.

Figure ES-2: Current Solid Waste Generation Distribution by Sector and Type, Johnson County



With the County's population and employment projected to increase significantly over the next 25 years, this information reinforces the importance for the County to develop and implement this SWMP that will guide solid waste management efforts over that time. Figure ES-3 presents the projected solid waste generation for the residential, commercial, and C&D sectors through 2044, based on current generation levels and population and employment projections.

Figure ES-3: 2019-2044 Johnson County Solid Waste Generation Forecast by Sector (Tons)

Facilities

Section 4.0 provides an overview of the MSW landfills, materials recovery facilities (MRFs), transfer stations, organics processing facilities and HHW facilities located within the County and regionally, if utilized by County residents and businesses. Descriptions of these facilities are described in the sector summaries below. JCDHE will be carefully tracking the remaining capacity of facilities and encouraging the development of new facilities as needed. The County does anticipate the siting, design, and construction of a new HHW building or expansion to an existing building (described in further detail in Section 10.0). This section also highlights opportunities for the County to engage in public-private partnerships to develop infrastructure needed for disposal and processing of materials.

Single-Family Residential

Residential solid waste collection services, discussed in Section 5.0, include curbside collection of refuse, single-stream recyclables, yard waste, and bulky waste. These residential solid waste services are primarily provided by private haulers, contracted through a city, a homeowner's association (HOA), or an individual household. The City of Olathe is the only city that has a municipal collection operation. The County has a very active educational outreach program through social, online, and print media and public

engagement through coordinated events and presentations. JCDHE will continue to develop strategic educational programs based on regular participation, composition, and contamination studies and in coordination with processing facilities. JCDHE will develop a standard list of acceptable materials and a standard collection contract to be made available to HOA's, municipalities, and with interlocal agreements. JCDHE will continue to support pay-as-you-throw implementation by advising residents on cart size selection.

Multifamily Residential

Section 6.0 describes the management of MSW generated by the estimated 23 percent of County residents residing in multifamily complexes. This sector is currently served similar to the commercial sector, by private haulers. Recycling in multifamily residential facilities is limited, but some multifamily complexes utilize community bins in common areas or in resident units. The City of Lenexa currently requires haulers to provide recycling services to multifamily complexes; however, this will be expanded as multifamily residential complexes are affected by the commercial universal provision of services (discussed below). JCDHE will develop a guidance document for municipalities providing example ordinance language for multifamily residential complexes including provisions for convenience recycling locations, necessary container sizing, and appropriate enclosures for recycling containers and continue to work with multifamily residential complexes through their green business program.

Commercial

MSW generated by the commercial sector is discussed in Section 7.0. Commercial entities contract for trash and recycling collection services through private haulers and are not regulated or licensed by the County. City of Olathe provides commercial hauling, however, only on a contracted basis and in competition with other private haulers. Yard waste from commercial properties is typically generated by a landscaping contractor who is responsible for the material transport and processing at a compost facility. Other organics (food waste) generated from commercial entities is selectively contracted for collection and processing by Missouri Organics Recycling (located in Kansas City, Missouri). JCDHE has focused its efforts in source reduction and increasing diversion in the commercial sector through its green business program, providing waste consulting and monetary support (\$500) for recycling and/or composting infrastructure. JCDHE has gained key partnerships with large organizations such as various chambers, the DOPP, and multiple local school districts.

It is recommended that the County develop and implement a plan, ordinance, and phasing plan requiring haulers to provide recycling and/or organics along with refuse collection services for their customers at a single cost and to become licensed through the County and report the amount of refuse, recyclables,

and/or organics collected on an annual basis. JCDHE will then focus its green business program on helping commercial entities develop recycling and composting programs to compliment this universal provision of services.

Construction & Demolition

Section 8.0 describes the County's management of C&D materials. As the County grows, it continues to generate used or overstocked materials such as brick, roofing materials, wood, flooring, drywall, non-asbestos insulation, concrete, and asphalt. C&D waste is disposed of in permitted C&D landfills or within the Johnson County Landfill. Minimal diversion or reuse opportunities currently exist, such as Habitat for Humanity ReStore and the crushing of existing concrete for use as base material in new road construction. JCDHE will modify County regulations to require recycled material for projects which are County-funded and will develop a guidance document for municipalities providing options for incentives or changes to ordinances and codes and applicable case studies to increase diversion or reuse of C&D materials. JCDHE recently toured a regional C&D MRF in St. Louis, Missouri and will encourage development of a similar facility in the Kansas City Metropolitan area.

Organics

Section 9.0 provides a summary of organics (yard and food waste) management within the County. Since the regulation prohibiting the co-collection of yard waste with other residential waste intended for disposal and prohibiting the disposal of yard waste in the Johnson County Landfill, JCDHE has seen a significant increase in diversion of these materials to composting facilities. The Johnson County Landfill and the City of Olathe each have a facility for composting and mulching of yard waste or residents can take yard waste to Suburban Lawn and Garden in Kansas City, Missouri. Missouri Organic Recycling accepts food waste generated from commercial entities or collected independently by residents. A large-scale food waste diversion program, such as curbside collection, is not being recommended at this time due to limitations of existing infrastructure to compost food waste; however, JCDHE will continue to work with large generators to encourage minimization or diversion as well as to seek out opportunities for pilot programs to utilize existing yard waste composting infrastructure in the County to integrate food waste composting. JCDHE is also coordinating with the Johnson County Food Policy Council (JCFPC) for targeted public education and outreach.

Household Hazardous and Other Wastes

While HHW represents less than one percent of the residential waste stream generated in the County, the sound management of these wastes has significant impact on the environment. Materials such as paint, cleaning products, fertilizer, fluorescent bulbs, other chemicals are accepted at the Phillip J. Wittek

Household Hazardous Materials Collection Facility (County-owned) and the City of Olathe Household Hazardous Waste Facility. In 2019, the County will begin planning on relocating and expanding its HHW facility. Section 10.0 describes this and the management of other wastes including lead acid batteries, white goods containing chlorofluorocarbons, pesticides and pesticide containers, motor oil, consumer electronics, and medical wastes. This section also includes a discussion on the County's desire to decrease the use of single-use plastic bags. Because of the complexities of implementation and the roles of municipal, county, and state government, it is recommended that a feasibility study on the elimination of single-use plastic bags through taxes, fees, or a ban be conducted.

County Operations and Resources

County Operations and Resources are discussed in Section 11.0. JCDHE has supported the implementation of a standardized recycling program in County facilities, a composting program in the Sunset Drive building, and a County-wide electronic waste recycling program. JCDHE is supporting the development and will participate in the implementation of a County-wide sustainability plan. Although the County makes a conscious effort to implement sustainable solid waste management practices into its facilities and operations, a majority of JCDHE's time and effort is dedicated to supporting external clients including residents and local business. JCDHE works closely with the SWMC to implement recommendations developed in the SWMP. To aid in implementation of recommendations and stakeholder engagement, the SWMC and JCDHE will encourage municipalities to create independent environmental committees and include them, among additional waste haulers, processors, and disposal facility personnel, in SWMC meetings and other strategic discussions.

1.0 OVERVIEW, GOALS, AND OBJECTIVES

1.1 Purpose

The updating of Johnson County's (the County's) Solid Waste Management Plan (SWMP) is required by the Kansas Department of Health and Environment (KDHE) every five years, as described in the Kansas Statutes Annotated (K.S.A.) 65-3405. In addition, it is a critical step in determining how the County will manage its solid waste over the next 25 years as the County's growth continues and market factors continue to evolve. Planning for and implementing an integrated solid management system is a complex and challenging endeavor requiring consideration of many factors: technological, institutional, legal, social, economic, and environmental. Furthermore, as communities pursue solutions to their solid waste management challenges, it is increasingly apparent that no single strategy, technology, or program offers a complete solution; rather, a combination of methods is needed to provide for appropriate and cost-effective management of the varying types of solid waste in accordance with the unique properties of these various solid waste stream components. The County and its consultant, Burns & McDonnell, developed this SWMP with a focus on the next five years of implementation, understanding that it will be updated every five years.

1.2 KDHE Plan Requirements

As described in Section 1.1, updating of the County's SWMP is required by KDHE, as described in K.S.A 65-3405. Additional plan requirements are described in Kansas Administrative Regulations (K.A.R.) 28-29-75 through 28-29-82. Meeting such plan requirements was central to the development of this SWMP. Plan requirements and required components are primarily addressed and included in the body of the SWMP (Sections 1.0 through 11.0). Additional requirements and background information are included in Appendix A, Supporting Plan Information.

1.3 Guidance for Reading of SWMP

Section 2.0 provides a description of the applicable planning studies and regulations, roles of government entities in solid waste management, and current solid waste management industry trends. Section 3.0 highlights the planning area characteristics such as population and economic projections, current and projected solid waste generation, and methodology utilized. Sections 4.0 through 11.0 are each dedicated to discussion of a specific sector or material type for which solid waste needs to be managed within the County. Sections 4.0 through 11.0 address the following sectors: facilities, single-family residential, multifamily residential, commercial, construction and demolition (C&D), organics, household hazardous waste (HHW) and other special wastes, and county operations. Each sector has unique characteristics requiring a customized approach to solid waste management for its customers and material types. These

“sector sections” begin with a current system review of the 2013 solid waste management plan recommendations, case studies associated with the sector, an evaluation of options for implementation, and the feedback received through stakeholder engagement pertaining to the sector. These sections then present proposed recommendations and associated action items. Appendix B summarizes the recommendations discussed in the “sector sections.” In the recommendations for each sector, the following categories and metrics are identified:

- **Recommendation.** A recommendation is presented as a high-level approach to solid waste management. Each sector has between one and four recommendations, some of which are similar between sectors and some of which are unique. Multiple action items are presented for each recommendation as specifics for the County to implement the recommendation and work towards its established goals and priorities.
- **Action Item.** The action items defined for each recommendation are the specific activities or tactics the County may utilize to implement each recommendation. Action items vary in specificity, depending on the level of understanding or data the County currently has for each sector or type of solid waste.
- **Priorities.** Recommendations and action items have each been assigned a priority ranking on a one to five scale, in which one indicates highest priority and five indicates lowest priority action items over the next five years. Current priority rankings are further described as follows:
 - 1:** Items that should be addressed first by the County in implementing the SWMP. These include items that are already in progress within the County or for which the implementation of additional recommendations rely upon completion.
 - 2:** Next priority items the County should dedicate significant effort toward. Often, these priorities have had significant support by the public and SWMC but lack available resources at this time.
 - 3:** Items given high priority, but that require moderate effort by the County, have moderate potential for increased diversion, and require buy-in from other affiliated parties. Many of these items require education and outreach to municipalities and companies to assist them with the development or enhancement of diversion of materials.
 - 4:** Items requiring low to moderate effort, that may be lower priority or have lower potential for increased diversion, often monitoring private infrastructure and quantities generated.

5: Items requiring low effort by the County, that are general in nature, or included in County staff's current responsibilities but are still important to the effective management of solid waste.

Some action items have been designated as lower priority because the infrastructure to implement them is not currently available due to the privatized nature of much of the solid waste industry in the region. The priority of these items may be revised in the future if infrastructure is developed or public-private partnerships become available. Additionally, some action items have been designated as lower priorities due to limitations on JCDHE resources. Similarly, the priority of these items may be revised if additional resources are made available or as prior items have been accomplished. As the County works to implement the SWMP, establishes baselines for each sector, and revisits its priorities, priorities and measurable goals will be further defined and priority rankings may be revised. The County has been provided with a worksheet version of Appendix B, to be utilized for reviewing and updating action item priorities, as needed. It is anticipated that this review and update of the action items will be conducted on an annual basis.

- **Increased Diversion Potential.** This measure indicates the potential for increased diversion of solid waste for each specific activity or tactic. Each activity or tactic varies in its increased diversion potential and an understanding of potential is important to consider relative to other factors such as difficulty of implementation, financial impacts, and implementation timing. Increased diversion potential is quantified on a low, medium, or high basis, where "low" indicates there is minimal potential for increased diversion with implementation and "high" indicates a large potential for increased diversion.
- **Difficulty of Implementation.** This planning level measure quantifies the level of regulatory, stakeholder, and financial difficulty for implementation of a specific activity or tactic. Difficulty of implementation is quantified on a low, medium, or high basis. "Low" indicates the activity or tactic may be relatively easy to implement with minimal initial difficulty and "high" indicates that the County should anticipate difficulties and measurable initial costs for implementation.
- **Financial Impacts.** For each activity or tactic implemented, there will be associated costs. This is meant to provide a summary of the potential types of costs each activity may require. It is not meant to provide a detailed cost analysis. Further evaluation prior to implementation will be conducted to detail the costs to the County for each activity.
- **Implementation Timing.** For purposes of the SWMP, implementation timing is primarily focused on the next five years, since the County updates the SWMP every five years. Activities and tactics are spread over the five-year period based on one or multiple years. As the County implements these short-term activities and tactics and is able to measure the impacts and progress

towards goals and priorities, it will be able to further define actions to be taken when the next SWMP update occurs.

- **Responsible Party.** Johnson County Department of Health and Environment (JCDHE) is the primary department responsible for implementing the SWMP; however, many of the activities described herein requires commitment from and coordination with municipalities within the county and solid waste haulers, processors, and disposal facilities.

1.4 Key Terms

This section presents definitions of a selection of key terms used throughout the SWMP that are necessary for a comprehensive understanding of the current solid waste management systems and strategies that may be implemented in the future.

Sectors. Municipal solid waste (MSW) is broadly categorized into two primary sectors, residential and commercial. C&D debris is not considered MSW and is handled and disposed of separately from residential and commercial MSW material. The total waste generation forecast was developed based on residential MSW, commercial MSW, and C&D debris categories.

- **Residential Sector.** The residential sector includes only material generated by single-family households.¹
- **Commercial Sector.** The commercial sector includes material generated by commercial (offices, retail and wholesale establishments, restaurants, etc.) and institutional (schools, libraries, hospitals, etc.) entities as well as by residents living in multifamily structures. Multifamily solid waste is collected, processed, and reported in combination with other commercial material and was therefore included in the commercial sector. Generally, solid waste data specific to multifamily households was not available.
- **Construction and Demolition (C&D) Debris.** C&D debris is excluded from residential and commercial sector MSW quantities and is therefore addressed in a separate section, Section 8.0, of this SWMP. C&D debris is generated by the construction, renovation, and demolition of residential and non-residential structures as well as city, county, and state road and bridge projects and is further defined in the Materials portion of this section.

¹ Single-family households are defined as traditional single-family homes and structures containing 1-4 individual housing units (e.g., duplexes, townhomes).

1.5 Generation, Recycling, and Disposal

This section provides definitions used regarding the total amount of solid waste generated within the County and the material disposal or processing streams that comprise total generation quantities.

- **Generation.** Solid waste generation is the total quantity of material disposed in landfills plus the total quantity of material recovered through recycling and composting operations. Total generation is the quantity of material that the County must manage through various disposal and recycling programs and services. Reuse material quantities are not included in generation because quantities are unknown.
- **Recycling.** Recycling rate is defined as the proportion of MSW that is diverted from landfill disposal and has value as a commodity or as an input into other products or processes. There are various methods for measuring recycling rates (as discussed in the “Recycling Measurement” portion of Section 2.3). In this SWMP, recycling and recycling rates include MSW material that is collected and processed through single-stream recycling programs and materials recovery facilities (MRFs) and yard waste and organics material that is mulched, composted, or otherwise diverted from landfill disposal. Recycling rates do not include any materials that are diverted from landfill disposal through reuse activities. Quantities of reused MSW and C&D materials are difficult to measure.
- **Disposal.** Disposal refers to all remaining material placed in landfills that has not been recycled, composted, or otherwise diverted. Disposed materials include some quantities of materials that were not recovered prior to disposal but could potentially be recovered through improvement of recycling programs, infrastructure, or education. Potential for additional recyclable material recovery from disposed materials is discussed further in Section 3.6, Waste Characterization.

1.6 Materials

MSW is composed of several categories of solid waste and recyclables that are handled through various collection, disposal, and processing methods and facilities, depending on the material category. This section provides definitions for the primary categories of MSW addressed in this SWMP and defines C&D debris separately because C&D debris is not considered component of MSW.

- **Municipal Solid Waste (MSW).** MSW refers to the entirety of the waste stream that is generated by everyday activities in the residential and commercial sectors. MSW can be further categorized by material types including refuse, single-stream recyclables, organics, and HHW. Different MSW material types require different methods for best management practices. Refuse is disposed in MSW landfills. Much of the MSW generated can be recycled or composted at

various processing facilities. MSW does not include commercial hazardous waste or industrial, agricultural, mining, or sewage sludge wastes.

- **Refuse.** Refuse is the portion of MSW that cannot practically be recycled, reused, or otherwise diverted from disposal. True refuse has no viable handling methods other than disposal in an MSW landfill. However, in most communities, a portion of material disposed as refuse has the potential to be recycled. Waste characterization and potential for increased recovery of recyclable materials from materials currently disposed in landfills is further addressed in Section 3.6.
- **Single-stream Recyclables.** Single-stream recyclables refers to materials that are typically accepted through municipal curbside recycling programs or drop-off locations, processed through MRFs, and sold as commodities to markets where the material is then repurposed. Single-stream recyclables include items such as, but are not limited to, plastic and glass containers, aluminum and steel cans, cardboard, and other various paper products. The full range of materials accepted through a municipality's single-stream recycling program can vary by community or by hauler.
- **Organics.** Organics are plant or animal-based materials. Organics have the potential to be diverted from landfill disposal through composting or mulching processes. Within the category of organics, there are the two sub-categories of yard waste and food waste. Vegetative material generated from the residential sector, commercial sector, or parks maintenance is categorized as yard waste, including materials such as leaves, grass clippings, limbs, brush, and other plant trimmings. Food waste includes materials such as are materials such as fruits and vegetables, meats, eggs and dairy, coffee grounds, and food-soiled paper products such as napkins, pizza boxes, and various types of cardboard and paper food containers. Depending on available processing options, yard waste and food waste may be processed together or separately.
- **Household Hazardous Waste (HHW).** HHW refers to common household chemicals or other materials that should not be disposed of in MSW landfills due to their potential for adverse environmental and health impacts. They require special processing by an entity permitted by KDHE. HHW includes, but is not limited to, materials such as paints, fertilizers, pesticides and poisons, pool chemicals, household cleaners, automotive fluids, batteries, light bulbs, and e-waste. Section 10.0 addresses additional types of HHW and other special wastes and management options for these wastes within Johnson County. HHW generally does not include chemicals generated by commercial or industrial entities, though some processors may accept materials from small commercial facilities.

- **Construction and Demolition (C&D) Debris (as a material).** C&D debris is not included in the category of MSW. C&D debris is defined as solid waste resulting from the construction, remodeling, repair, and demolition of structures, roads, sidewalks, and utilities. Material is generated from residential, commercial, and public sector (e.g., municipal, state, or federal) projects. It includes, but is not limited to, materials such as brick, roofing materials, wood, flooring, drywall, non-asbestos insulation, concrete, and asphalt. Most C&D debris is disposed in separate C&D permitted landfills. Smaller amounts may be recycled or reused.

1.7 Stakeholder Engagement

The SWMP has been developed in coordination with JCDHE staff and the Solid Waste Management Committee (SWMC). The SWMC is comprised of representatives from across the solid waste sector, representing local governments, environmental organizations, and private sector solid waste haulers, processors, and disposal facilities. The following active committee members participated with JCDHE staff in the development and review of this SWMP

- Ms. Ruth Hopkins, Chairperson, Cities of the First Class
- Mr. Dave Drovetta, Vice-Chairperson, Cities of the Second Class
- Mr. Daniel Jones, Private Industry
- Ms. Kate Collum, Cities of the Third Class
- Mr. Mike Hey, Private Industry
- Ms. Debbie Kring, Cities of the Second Class
- Ms. Megan England, Cities of the Second Class
- Ms. Anne Melia, Citizen Organization
- Mr. Scott Martin, Private Industry
- Mr. Paul Chaffee, Cities of the First Class
- Mr. Raymond Manley, General Public
- Ms. Lindsay James, Cities of the First Class
- Mr. Kent Seyfried, Cities of the First Class
- Mr. Don Siefert, Cities of the First Class

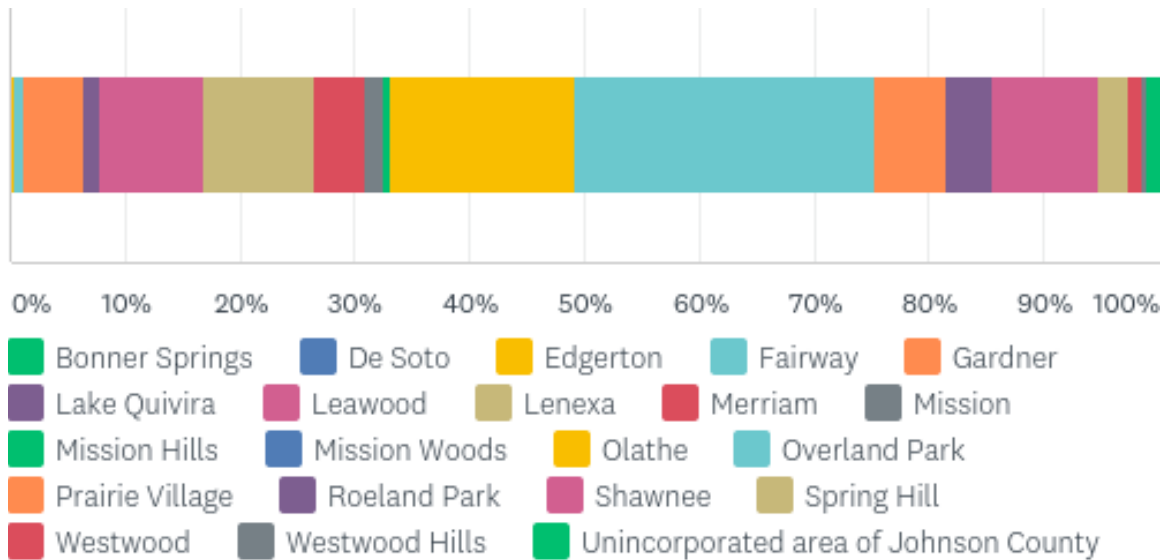
Key aspects of stakeholder engagement are described in this section.

- **Meetings and Workshops with the SWMC:** Burns & McDonnell conducted multiple meetings and workshops with the SWMC during the development of the SWMP. These workshops ranged

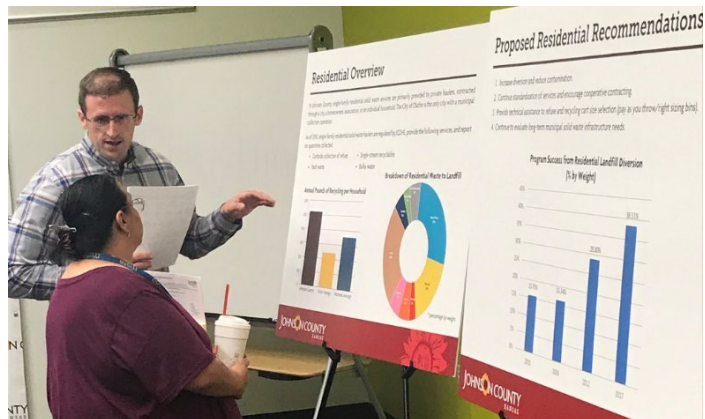
from providing an overview of key industry trends and challenges to having the SWMC contribute to determining the key issues and recommendations for the SWMP.

- On-Line Survey:** JCDHE posted a survey on its website to obtain feedback regarding recommendations for future solid waste management. The survey was made available from April 3 to May 6, 2019 and had 1,085 participants during that time, 1,061 which were residents of the County. A representative number of residents from each municipality in the County participated in the online survey, as shown in Figure 1-1. Responses to questions asked in the survey are included in Sections 4.0-11.0 with the associated sector. Full results of the survey are included in Appendix C.

Figure 1-1: Online Survey Participation by Municipality



- **Stakeholder Meetings:** Two stakeholder meetings were conducted on April 24, 2019.
 - The first of the meetings was conducted with a group of industry professionals including over 20 representatives from local solid waste haulers, area planning agencies, operators of solid waste (MSW, C&D, organics) processing and disposal facilities, and JCDHE staff. A short presentation on the current system review and proposed recommendations was provided. Following the presentation, breakout sessions regarding residential and commercial solid waste management, C&D waste, and organics were conducted.
 - The second of the meetings was a publicly advertised community meeting. Participants included elected officials, industry representatives, and community members. Information was provided in an open house style setting with staffed boards to guide discussion on the status of each solid waste management sector and its associated proposed recommendations. Approximately 60 people attended and provided feedback through conversations with JCDHE and Burns & McDonnell staff and written surveys.



2.0 PLANNING STUDIES, REGULATORY, AND TRENDS REVIEW

This section provides a broad perspective of the historical and current state of the solid waste management environment in which the County is developing this SWMP, and is organized into the following subsections:

- Relevant historical planning studies;
- Regulatory and policy review;
- Roles of government entities in solid waste management; and
- Solid waste management industry trends.

2.1 Relevant Historical Planning Studies

Understanding prior solid waste and community planning projects completed at the local, regional, and state levels is a critical step in effectively and efficiently developing the SWMP for the County. To inform development of this SWMP, Burns & McDonnell reviewed the following studies and plans.

Kansas Solid Waste Management Plan (2016, 2010). These plans are statewide solid waste management plans, as required to be developed per K.S.A. 65-3406. The statewide plan is updated approximately every five years by KDHE.

Johnson County Solid Waste Management Plan (2013, 2009). As required by K.S.A. 65-3405 and K.A.R. 28-29-75 through K.A.R. 28-29-82, JCDHE developed updates to their SWMP to establish goals and fulfill regulatory requirements associated with management of solid waste within with the County.

Johnson County Solid Waste Management Plan Annual Updates (2018, 2017, 2016, 2015, 2012, 2011, 2010, 2009). Annual updates were developed by JCDHE staff and submitted to KDHE to document progress made on the implementation of the most recent SWMP. These annual updates were required by K.S.A. 65-3405 and K.A.R. 28-29-80.

Waste Characterization Study of Johnson County Transfer and Disposal Facilities (2016, 2007).

These studies included results and analysis of multiple waste sorts occurring at the Johnson County Landfill, Olathe Transfer Station, and APAC-Reno Construction & Demolition Debris Landfill.

Solid Waste Rate Study (2011). In 2009, the Kansas legislature amended state law to allow county commissions to collect fees to recover costs to develop and implement SWMPs. This study determined the total cost of the Johnson County Solid Waste Management Program, equitably distribute the cost to property owners in the County, and design rates to recover the full cost of the Program.

Johnson County MSW Landfill Capacity Analysis (2011). This study provided an independent review of the updated waste capacity projections for the Johnson County Landfill, which were submitted by owner and operator, Deffenbaugh Industries. This review was to determine if the assumptions, analysis, and findings from Deffenbaugh are reasonable.

Johnson County Potential Solid Waste and Recycling Technology Financial Analysis (2011). This study provided planning level cost estimates for potential solid waste technologies in support of the County's solid waste planning efforts.

Mid-America Regional Council, Various Reports. The Mid-America Regional Council (MARC) has developed multiple reports assessing the state of the solid waste system within the Kansas City metro area and providing strategic recommendations. The following reports were reviewed in the development of this SWMP:

- MARC Solid Waste Management District Recycling Survey Final Report (2017);
- Recycling Economic Information Study for the Kansas City Metro Area (2016);
- Waste Diversion Assessment Summary of Community Benchmarking (2014);
- MARC Solid Waste Management District Recycling Survey Final Report (2012);
- Strategy for Sustainable Solid Waste Management (2009); and
- Strategic Directions and Policy Recommendations for Solid Waste Management in the Bistate Kansas City Metropolitan Region (2003).

Olathe Long-Term Solid Waste Master Plan (2018). City of Olathe developed this plan to address future waste management needs with the significant population increase and to optimize performance of the existing services and facilities provided by the City.

2.2 Regulatory and Policy Review

Prior solid waste regulations and policies, as well as the current regulatory climate and trends have largely shaped the state of solid waste management at various levels and define the environment in which this SWMP was developed. This section provides a summary of federal, state, and local regulations, policies, and trends.

2.2.1 Role of the Federal Government in Regulating Solid Waste

The federal government sets basic requirements to provide consistency among states and regulations to protect public health and the environment. The United States Environmental Protection Agency (U.S. EPA) is responsible for hazardous and non-hazardous solid waste management through the Office for

Solid Waste and Emergency Response (OSWER). Major federal legislation pertaining to solid waste management includes:

- Prior to 1965, solid waste management was entirely dependent on the judgement and decisions of individuals or local departments of health and sanitation. In 1965, Congress made its first attempt to define the scope of the nation’s waste disposal problems by enacting the Federal Solid Waste Disposal Act (SWDA), which financed statewide surveys of landfills and illegal dumps.
- The first significant federal legislation governing the disposal of non-hazardous and hazardous waste was passed in 1976 under the Resource Conservation and Recovery Act (RCRA). RCRA established landfill construction, management, and closure guidelines as well as regulates hazardous waste management facilities that treat, store, or dispose of hazardous waste. RCRA has been amended three times since its inception¹:
 - 1984 Hazardous and Solid Waste Amendments, requiring the phasing out of land disposal of hazardous wastes and granting the U. S. EPA regulatory authority over landfills (Subtitle C Hazardous Waste and Subtitle D Non-hazardous waste)
 - 1992 Federal Facility Compliance Act, strengthening enforcement of RCRA at federal facilities
 - 1996 Land Disposal Program Flexibility Act, providing regulatory flexibility for land disposal of certain wastes
- The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, known as Superfund, was enacted by Congress to address abandoned hazardous waste sites in the U.S. CERCLA has subsequently been amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).² The Office of Air and Radiation regulates solid waste-related air emissions, enforcing the Clean Air Act of 1976 (CAA) and subsequent amendments.

2.2.2 Role of the State Government in Regulating Solid Waste

House Bill No. 2801 amended K.S.A Chapter 65, Public Health, July 1, 1992. K.S.A. 65-3405(i), states the following:

Each county or group of counties is required to adopt and implement a solid waste management plan pursuant to this section and is responsible for continued and ongoing planning for systematic solid waste management within the boundaries of such county or

¹ U.S. Environmental Protection Agency. 2017. “History of the Resource Conservation and Recovery Act (RCRA).” Available online: <https://www.epa.gov/rcra/history-resource-conservation-and-recovery-act-rcra>

² U.S. Environmental Protection Agency (U.S. EPA). 2017. “Superfund: CERCLA Overview.” Available online: <https://www.epa.gov/superfund/superfund-cercla-overview>

group of counties. The solid waste management plan of each county, designated city or group of counties shall provide for a solid waste management system plan to serve all generators of solid waste within the county or group of counties.

Further, K.S.A. 65-3405 requires the development of a solid waste management committee in each county. The committee is responsible for the development of the solid waste management plan (SWMP), the annual review of the plan, and an update to the SWMP every five years. A public hearing is required with each five-year update to the SWMP.

Additional requirements of the SWMP are included in Section 1.2.

A major change to the Kansas annotated statutes since the 2013 SWMP includes the revision of K.S.A. 65-3407c. to allow the land application of solid waste generated by drilling oil and gas wells. The revised statutes include the following:

(E) On or before January 1, 2014, the secretary, in coordination with the state corporation commission, shall adopt rules and regulations governing land-spreading of waste generated by drilling oil and gas wells. In developing such rules and regulations, the secretary and the state corporation commission shall seek advice and comments from groundwater management districts and other groups or persons knowledgeable and experienced in areas related to this paragraph.

(F) On or before January 30, 2013 and 2014, the state corporation commission shall present a report to the senate standing committees on natural resources and ways and means and to the house standing committees on agriculture and natural resources and appropriations. Such report shall include, but not be limited to, information concerning the implementation and status of land-spreading procedures and the costs associated with the regulation of land-spreading pursuant to this paragraph.

(G) The provisions of this paragraph shall expire on July 1, 2015.

The addition of K.A.R. 28-31-260b and the amendment of K.A.R. 28-31-268 occurred in 2013 regarding the management of the hazardous waste program by KDHE. Through this, oversight was provided to KDHE to authorize corrective action against hazardous waste facilities. KDHE also corrected a mistake in 28-31-268 which potentially imposes analytical testing and paperwork requirements that KDHE did not intend on generators of 25 to 100 kilograms of hazardous waste per month.

Additionally, House Bill No. 2551, passed on July 1, 2014, repealed regulation pertaining to polychlorinated biphenyl (PCB) disposal facilities.

2.2.3 Role of County Government in Regulating Solid Waste

Johnson County Department of Health and Environment protects public health and the natural environment through the following:

- Permitting of solid waste hauling, processing, and disposal facilities;
- Education and outreach on MSW reduction, recycling, and composting;
- Technical support for the municipalities, commercial entities, vendors, and the general public;
- and
- Collection and environmentally sound management of HHW.

JCDHE, in coordination with KDHE, monitors and provides enforcement activities for all non-hazardous waste management within the County except for the non-hazardous waste disposal well located at the Johnson County Landfill. JCDHE delegates the management of collection, storage, and transportation to the cities and is directly responsible for the unincorporated areas within the County.

In 2010, the Johnson County Code of Regulations for Solid Waste Management services was revised to require the following services be provided to all residents within the County:

1. No later than January 1, 2012, residential trash haulers must provide curbside collection of an unlimited quantity of recyclable materials, and haulers must include this service as part of their base (minimum) service fee.
2. No later than January 1, 2012, trash haulers will be prohibited from collecting yard waste with other residential trash for disposal in a landfill. Any yard waste collected by haulers must be separately bagged or bundled by residents and properly composted or mulched for reuse. Yard waste cannot be disposed in any solid waste facility located in Johnson County.
3. No later than January 1, 2012, trash haulers must charge their residential customers for trash service based on the volume of waste put out at the curb for disposal (commonly called Volume-Based or Pay-As-You-Throw rates).
4. Residential trash haulers will be required to obtain a county license issued by the Johnson County Environmental Department in order to operate in Johnson County.

The code was subsequently changed in 2014. The adopted language with changes italicized is detailed below.

Amended Edits to the Johnson County Code of Regulations for Solid Waste Management, 2010 Edition

A. Article 1, Section 2(C), shall be, and hereby is amended to read as follows:

(c) Provide uniform and prudent regulations of solid waste within the county, from its generation or entry into the county through its collection, storage, transportation, processing, treatment, and disposal, and to ensure that the management of solid waste within the county conforms to rules and regulations, standards and procedures adopted by the secretary of the Kansas Department of Health and Environment (KDHE) as authorized by state statutes, including K.S.A. § 65-3401 et seq., and any amendments thereto, *including but not limited to K.S.A. 2013 Supp. 65-3410a and 2014 Kan. Sess. Law Ch. 112.*

B. All of the terms and provisions of Article 1, Section 2 of the Johnson County Code of Regulations for Solid Waste Management, 2010 Edition, shall remain the same, except for the above designated additions and amendments.

C. Article 4, Section 3(b) shall be, and hereby is amended, by the addition of the following new subsection 4:

(4) Whenever a violation of this permit or the Code of Regulations is cited, the Director may determine that no actionable violation occurred when the circumstances indicate that:

(i) The permittee takes prompt and appropriate action to correct the violation, and the Director has reasonable assurances that the conduct will not be continuing, or

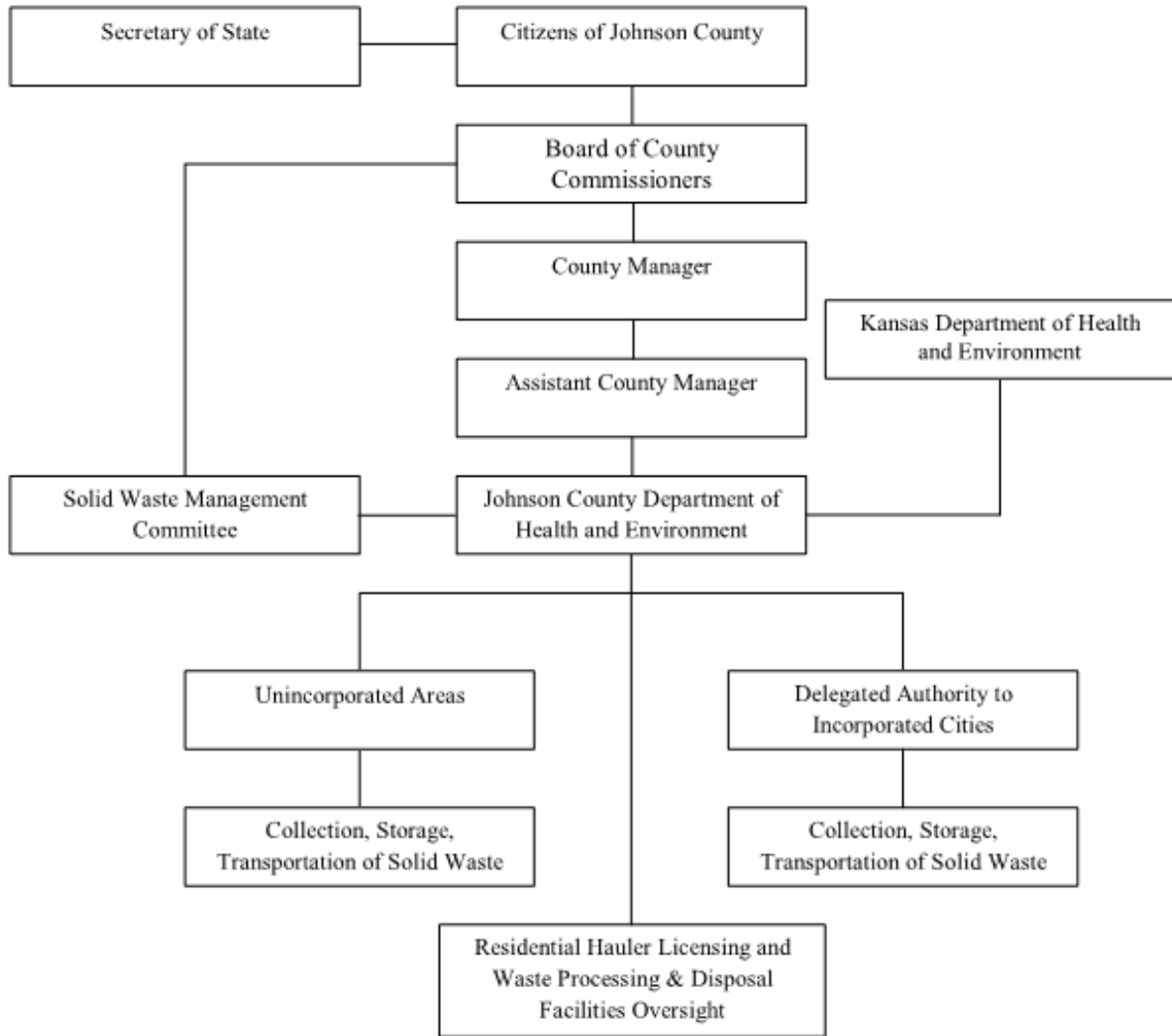
(ii) The conduct that would be a violation is de minimus and the permittee's conduct reflects an intent to comply with the intent of the permit and/or Code; or

(iii) The permittee has made a substantial effort to comply with the intent and purpose of the permit and/or Code, even though the manner of compliance does not follow the specific requirements of the permit and/or Code, due primarily to the actions of a City, County or the State, and those efforts do achieve the results sought by the permit and/or Code such that the permittee is in substantial compliance with the overall objectives of the permit and/or Code.

- D. All of the terms and provisions of Article 4, Section 3 of the Johnson County Code of Regulations for Solid Waste Management, 2010 Edition, shall remain the same, except for the above designated additions and amendments.

As required by K.S.A. 65-3405, the County has a SWMC that includes representatives from cities, unincorporated areas, citizen organizations, private industry, and the general public. The committee members are appointed by the Board of County Commissioners (BOCC). With the support of JCDHE staff, the SWMC is responsible for the development of the SWMP, annual review of the SWMP, and providing a report containing the results of the annual SWMP review to the BOCC. The SWMP is then implemented by JCDHE staff under the direction of the BOCC. An organizational chart for the management of solid waste in the County is shown below on Figure 2-1.

Figure 2-1: Organizational Chart for Solid Waste Management in Johnson County



2.2.4 Role of City Government in Regulating Solid Waste

Many of the municipalities within the County have city codes or ordinances pertaining to the storage, collection, processing, and disposal of solid waste. The specific codes and ordinances from each municipality are included as Appendix D.

2.3 Solid Waste Management Industry Trends

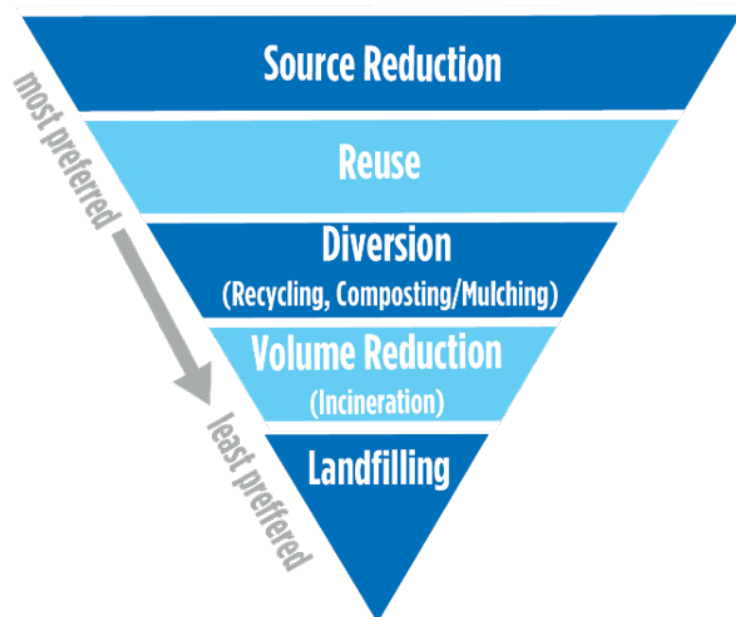
This section provides perspective on solid waste management trends that may influence the development of the SWMP and the industry moving forward.

Sustainable Materials Management. Sustainable materials management (SMM) is a systematic approach to using and reusing materials more productively over their entire lifecycles.³ SMM represents a change in how communities think about the use of natural resources and environmental protection, and goes beyond traditional thinking about waste reduction, reuse, recycling, and disposal. SMM emphasizes consideration of a product or material's entire lifecycle, from manufacturing to disposal, and the need to make sustainable choices throughout the lifecycle. An SMM approach seeks to:

- Use materials in the most productive way with an emphasis on using less;
- Reduce toxic chemicals and environmental impacts throughout the material life cycle; and
- Provide sufficient resources to meet today's needs and those of the future.

It has been a trend for the solid waste and recycling industry for SWMPs to have the broader view of SMM to better plan for their community's economic and environmental future.

Figure 2-2: U.S. EPA's Waste Management Hierarchy



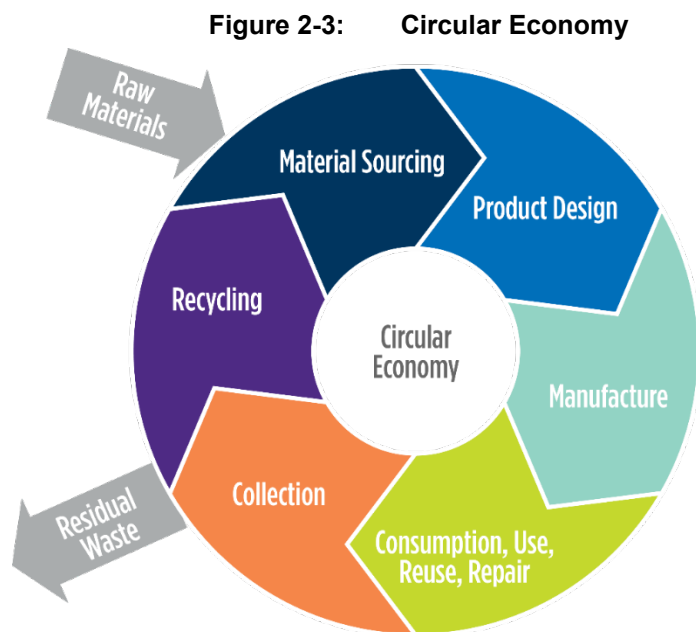
Waste Management Hierarchy. The waste management hierarchy, developed by the U.S. EPA, has also been adopted by many communities as a guide in managing municipal solid waste. This hierarchy is used as a tool in implementing a SMM approach to waste management. The hierarchy was developed in recognition that no single waste management approach is suitable for managing all materials and waste streams in all circumstances. The

hierarchy ranks the various management strategies from most to least environmentally preferred. It places emphasis on reducing, reusing, and recycling as key to SMM.⁴

³ U.S. Environmental Protection Agency (U.S. EPA). 2017. "Sustainable Materials Management Basics." <https://www.epa.gov/smm/sustainable-materials-management-basics>.

⁴ U.S. Environmental Protection Agency, 2017. "Sustainable Materials Management: Non-Hazardous Materials and Waste Management Hierarchy." <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy>.

Circular Economy. Like a SMM approach to planning for a community’s future, the concept of a circular economy considers environmentally and economically sustainable decision making throughout a material’s lifecycle. It offers a shift from the traditional manufacture-use-dispose linear thinking about materials. Instead, a circular economy keeps resources in use for as long as possible, maximizes life and extracted value, and emphasizes that used materials are recovered and regenerated for other uses. This approach allows the cycle to begin again, while minimizing material disposal.



Landfill Trends. As regulations become more restrictive and it becomes increasingly more challenging to obtain permits for new landfills, the solid waste industry is seeing an increase in the expansion of landfills by going higher (vertical expansion) and/or wider (horizontal expansion). Landfill owners are seeking to extend facilities’ useful lives by expanding the footprint, improving operations or through use of technologies, such as enhanced leachate recirculation (a process where liquids or air are added into a landfill to accelerate degradation of the waste, prolonging site life). Landfill owners and regulators are also looking beyond the prescriptive 30-year post-closure care (PCC) period and are recognizing that there may be additional long-term management costs and liabilities incurred by landfill facilities after the 30-year PCC period.

Landfill Tipping Fees. Based on a 2018 study conducted by the Environmental Research & Education Fund (EREF)⁵, average per-ton landfill tipping fees in Kansas are lower than the national average, and lower than average landfill tipping fees in the Midwest region (Minnesota, Illinois, Missouri, Wisconsin, Iowa, Indiana, Ohio, Nebraska, Kansas and Michigan). The rates shown in Table 2-1 reflect average posted gate rates at surveyed landfills. Negotiated tipping fees between a landfill and individual haulers may be lower.

⁵ Environmental Research & Education Foundation, 2018. “Analysis of MSW Tipping Fees, April 2018.” www.erefndn.org

Table 2-1: Average Per-ton Landfill Tipping Fees

	Per Ton
Kansas	\$39.75
Midwest Region	\$46.89
United States	\$51.82

Waste to Energy and Emerging Technologies. While recycling, composting and disposal have been considered traditional solid waste management methods in Kansas, some components of the solid waste stream could be converted into energy or further processed. Energy recovery from waste is the conversion of waste materials into usable heat, electricity, or fuel through a variety of processes, including but not limited to combustion, gasification, and anaerobic digestion. This process is often called waste to energy.

There are currently no waste to energy facilities in Kansas processing MSW. Outside of Kansas, MSW combustion accounts for a small portion of waste management in the U.S. While there are multiple reasons why waste to energy accounts for a small portion, one major consideration is cost. Johnson County's 2011 "Cost Estimates for Potential Solid Waste and Recycling Technologies" included a review of multiple conversion technologies (mass burn, refuse derived fuel and advanced thermal recycling). The 2011 study included a preliminary understanding of the capital and O&M costs for the three technologies, showing that costs per ton would range from \$120 to \$147 (in 2011 dollars). These per ton costs for conversion technologies are substantially higher than the average Kansas landfill tipping fee of \$39.75 per ton (in 2018 dollars).

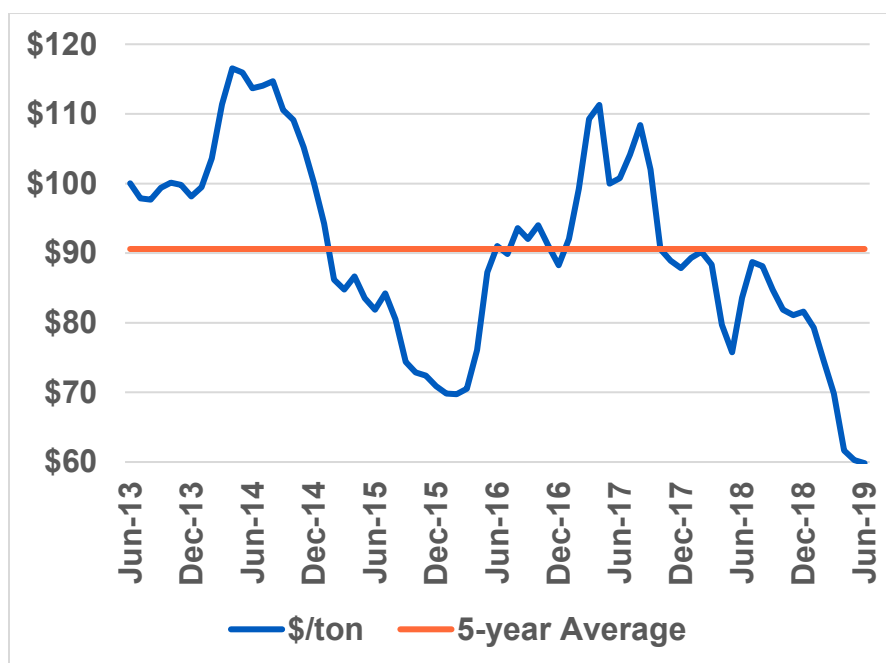
Recycling Processing Fees. The per-ton fee paid for processing of recyclable materials collected is impacted by various factors, including the market value of recovered materials and the level of contamination present. Over the past 10 years, the changing market value of recovered materials has had a significant impact on single stream material (commingled collection of paper, plastics, metal, and glass) processing costs.

Material recovery facilities (MRF) traditionally charged a cost per ton for processing recyclable materials and then offered a share of revenue generated through sale of the material back to municipalities (where municipalities facilitated organized recycling contracts). At the beginning of the 2008 recession, the market value of recyclable materials plummeted dramatically, from record highs to record lows. MRFs were no longer able to cover the entirety of their processing costs from processing fees plus material revenue sharing, and some MRFs experienced negative cash flows. Because of the dramatically reduced market values of recovered materials, many MRFs changed their cost recovery structure, and began

charging higher processing fees that would fully recover all processing costs, rather than relying on material revenues to be made whole. MRFs were then typically willing to offer municipalities a greater share of material revenues. As a result, processing fees have increased to amounts ranging from \$50-\$80+ per ton (up from \$30-\$40 per ton prior to 2008).

The average blended market value of processed recyclable materials collected as a single stream (paper, plastics, metal, and glass) in the Midwest region over the six-year period from 2013 to 2019 was \$91 per ton. In addition to commodity values, the value of single stream materials varies based on the composition of the materials (i.e. quantity of paper, plastics, metal, and glass) and quality of the materials. Figure 2-4 illustrates the changes in the average value of single stream materials from 2013 to 2019.

Figure 2-4: Single Stream Material Revenue (per Ton)



Organics Management. Organics include a range of materials, including grass, leaves, brush and food scraps. The level of effort to recover organics has varied significantly across the United States for many years. The County implemented multiple regulations in 2012 to divert residential yard waste from landfills (as discussed in Section 2.2.3) for the residential sector. Additionally, JCDHE staff are working to educate individuals, schools, and businesses about the benefits of organic waste diversion from landfills and have assisted with implementing and expansion of several significant organic waste diversion programs including Shawnee Mission School District’s Cafeteria Composting Program. Correspondingly, there has been a significant increase in organic recycling quantities in the County. Some other communities have also implemented food scrap collection programs for the residential and

commercial sector; however, this practice is less common than yard waste collection in the central United States. Going forward, it is likely that communities will continue to explore options to increase recycling by diverting more organic materials.

Use of Transfer Stations. Transfer stations are facilities that are used to consolidate material from multiple collection vehicles into larger, high-volume transfer vehicles for more economical shipment to distant disposal or processing facilities. Transfer stations can be used for material destined for landfilling, recycling and composting. With a nationwide trend toward larger disposal and processing facilities, there has been an enhanced need for transfer facilities. When longer transport distances are required to send materials to facilities, transfer stations allow collection vehicles to be more productive by maximizing the amount of time spent collecting material rather than driving to a facility. Key factors that affect the financial feasibility of transfer stations include:

- Collection cost
- Disposal / processing cost
- Distance/travel time to landfill or processing facility
- Fuel costs
- Annual tonnage hauled
- Payload of transfer trailers versus collection vehicles

Recycling Measurement. Efforts to measure recycling have traditionally calculated a recycling rate. A recycling rate indicates the percentage of waste generated that is recycled and is typically calculated using the formula: $[\text{Total Recycled} / (\text{Total Recycled} + \text{Total Disposed})] \times 100 = \text{Percent Recycling Rate}$. Over the past decade, there have been several changes in the weights and composition of materials in the waste stream. For example, there is typically less newspaper, but more cardboard. Plastic bottles and aluminum cans weigh less. Some consumer packaging contains multiple materials, making recycling more challenging. Due to these reasons, some communities are considering alternatives to recycling measurement, other than calculating a recycling rate. Some alternative measurement options include:

- **Capture rate:** Percentage of recyclable material that is recycled versus disposed
- **Disposal rate:** Based on per capita/employee disposal quantities
- **Participation rate:** Based on how often a resident or business recycles over a defined time period (e.g. monthly)

- **Life-cycle analysis:** Analysis of the total environmental impacts associated with a product or process, and evaluation of opportunities to reduce impacts throughout the life-cycle, through methods such as using recycled rather than virgin materials for inputs
- **Greenhouse gases:** Quantification of greenhouse gas reductions through both increased use of recycled materials as product inputs (life-cycle analysis) and reduction of material landfilled, which reduces generation of greenhouse due to decomposition

3.0 PLANNING AREA CHARACTERISTICS

Planning for the County's future solid waste management needs requires an understanding of projected growth that will impact the quantities of waste generated, disposed, and recycled within the County. Population and economic growth will largely determine the level of growth in solid waste generation that will occur within the County over the next 25 years (through 2044). This section describes the County's current and projected residential population, as well as current and projected economic growth based on employment. It then describes how these characteristics were applied to develop the County's current solid waste generation profile and future solid waste generation projections. Burns & McDonnell utilized current solid waste generation data and a selection of existing population and employment projections to develop the solid waste generation projections for the County, presented in Section 3.5.

3.1 Demographic Characteristics

This section describes the County's historic, current and projected demographic characteristics, including population and household distributions.

3.1.1 Historic and Current Populations

Johnson County is the most populous county in the state of Kansas, with a 2017 total population of approximately 578,800, based on estimates from the U.S. Census Bureau. Only Sedgwick County, home to the second largest metropolitan area in the state, has a population nearing that of Johnson County, at 510,500. The next largest county in terms of population, is Shawnee County, with a population of 178,400.¹

Both the state of Kansas and Johnson County have seen continuous population growth throughout the past century. Historically, the population growth of Johnson County has far outpaced that of the state overall. Total populations continue to increase but growth rates have decreased since the 2010 Census. Table 3-1 shows historic population and growth rates of Kansas and Johnson County each decade since 1970, with projected growth through 2020.

¹ 2017 total county populations data source: U.S. Census Bureau, 2013-2017 American Community Survey (ACS) 5-Year Estimates.

Table 3-1: State & County Historic Population & Growth by Decade¹

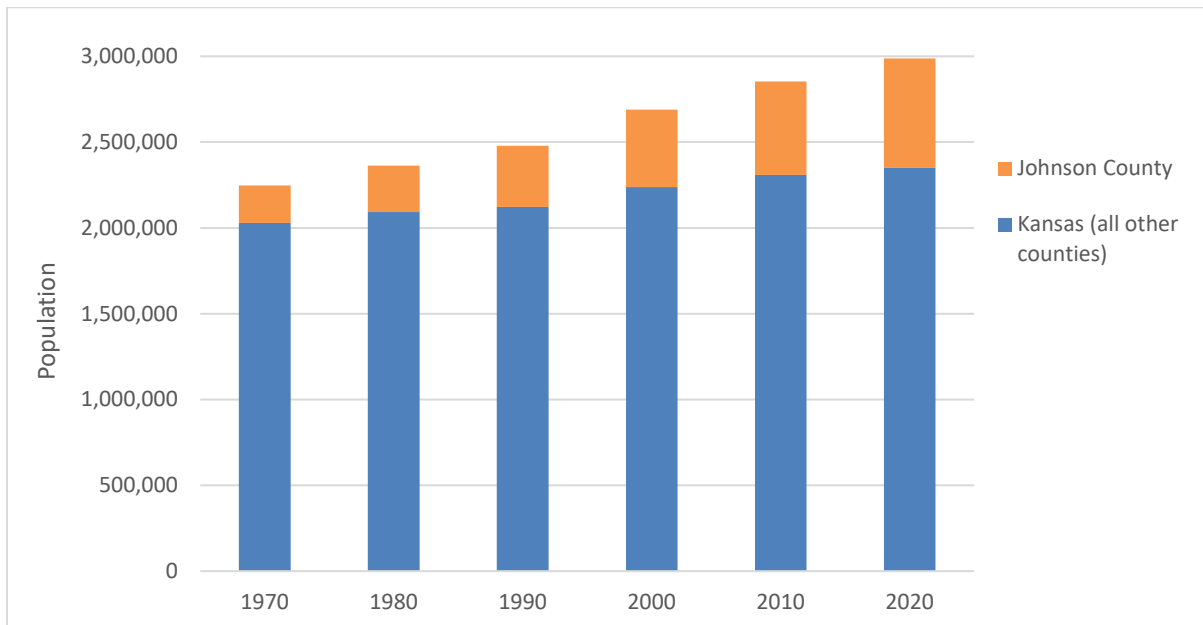
	1970	1980	1990	2000	2010	Projected 2020 ²
Kansas						
Population	2,246,578	2,363,679	2,477,574	2,688,418	2,853,118	2,988,194
10-Year Growth		5.2%	4.8%	8.5%	6.1%	4.7%
Johnson County						
Population	217,662	270,269	355,054	451,086	544,179	638,384
10-Year Growth		24.2%	31.4%	27.0%	20.6%	17.3%

¹ Data for years 1970-2010 is based on U.S. Census Bureau, Decennial Census Total Populations.

² 2020 projected populations and growth rates are based on the Mid-America Regional Council (MARC) previously developed 2040 Forecast for Johnson County (<http://www.to2040.org/forecast.aspx>) and Wichita State University’s Center for Economic Development and Business Research Population Projections for the state of Kansas (<http://kansaseconomy.org/local-forecasts/population-forecast>).

Figure 3-1 compares the population growth of Johnson County with that of the state as a whole. Over the past few decades, Johnson County has grown from approximately 10 percent of the state’s total population to a projected 21 percent in the year 2020.

Figure 3-1: Johnson County and Total Kansas State Population, 1970-2020



Johnson County includes 20 incorporated cities covering approximately 59 percent of the County’s 477 square miles and housing the vast majority of the County’s population. There are seven unincorporated rural townships, which cover 41 percent of the County’s geographic area, but are home to less than one

percent of the total population.² Fifty-five percent of the County's population live in the two most populous cities, Overland Park and Olathe. Another 26 percent live in the next three most populous cities, Shawnee, Lenexa, and Leawood. Table 3-2 provides selected historic populations by city from 2010 through 2017.

Table 3-2: Johnson County Population Growth by City, 2010-2017¹

City	Population			Compound Annual Growth Rate, 2010-2017
	2010	2015	2017	
Bonner Springs	7,314	7,498	7,644	0.6%
De Soto	5,720	5,941	6,042	0.8%
Edgerton	1,671	1,706	1,660	-0.1%
Fairway	3,882	3,964	3,946	0.2%
Gardner	19,123	20,466	21,059	1.4%
Lake Quivira	906	911	971	1.0%
Leawood	31,867	33,339	34,195	1.0%
Lenexa	48,190	50,412	52,030	1.1%
Merriam	11,003	11,232	11,259	0.3%
Mission	9,323	9,481	9,445	0.2%
Mission Hills	3,498	3,572	3,578	0.3%
Mission Woods	178	183	184	0.5%
Olathe	125,872	131,508	134,368	0.9%
Overland Park	173,372	181,464	186,147	1.0%
Prairie Village	21,447	21,814	21,932	0.3%
Roeland Park	6,731	6,819	6,810	0.2%
Shawnee	62,209	64,125	64,840	0.6%
Spring Hill	5,437	5,739	6,064	1.6%
Westwood	1,506	1,795	1,720	1.9%
Westwood Hills	359	446	394	1.3%
Unincorporated ²	4,571	4,399	4,509	-0.2%
Johnson County Total Population	544,179	566,814	578,797	0.9%

¹ Source: U.S. Census Bureau Annual 5-Year Population Estimates for 2015 and 2017. 2010 population estimates are based on U.S. Census Bureau, 2010 Decennial Census Total Populations.

² Source: Unincorporated township total population estimates were calculated as the total Johnson County population minus the sum of the population of the incorporated cities for each year shown.

² Source: Johnson County, Kansas. Retrieved December 2018 from <https://www.jocogov.org/government/about-johnson-county/fast-facts>

Household Distribution by Residential Sector. Many municipal planning efforts, including solid waste management, categorize residential populations into two general categories – single-family and multifamily. For Johnson County, the single-family population is defined as people living in single-family (1-unit) homes or structures with four or fewer housing units. The multifamily population is defined as people living in structures with five or more housing units.

This distinction is important because multifamily MSW requires planning and management different than that of the single-family sector. Generation and recycling patterns differ from single-family, and multifamily material is collected and managed in combination with commercial material. For purposes of current and projected waste generation estimates, the residential sector includes only MSW generated by single-family residents. Commercial sector solid waste estimates and projections are inclusive of multifamily and commercially generated MSW. Additional considerations for the single-family, multifamily, and commercial sectors are provided in each respective section of the SWMP.

Table 3-3 presents the 2017 estimated single-family and multifamily distribution of occupied households for each city and for Johnson County overall.³

Table 3-3: Single-Family and Multifamily Housing Distribution by City

City	2017 Population ¹	Occupied Housing Units ^{2,3}			Occupied Housing Unit Distribution ⁴	
		Total	Single-family ⁵	Multifamily	Single-family ⁵	Multifamily
Bonner Springs	7,644	2,811	2,365	446	84%	16%
De Soto	6,042	2,328	2,042	286	88%	12%
Edgerton	1,660	595	578	17	97%	3%
Fairway	3,946	1,734	1,669	65	96%	4%
Gardner	21,059	7,173	5,949	1,224	83%	17%
Lake Quivira	971	345	345	0	100%	0%
Leawood	34,195	12,680	11,541	1,139	91%	9%
Lenexa	52,030	20,694	14,317	6,377	69%	31%
Merriam	11,259	5,132	3,435	1,697	67%	33%
Mission	9,445	4,842	2,612	2,230	54%	46%
Mission Hills	3,578	1,234	1,234	0	100%	0%
Mission Woods	184	79	79	0	100%	0%

³ It should be recognized that while household distribution is useful in estimating population distribution between single-family and multifamily households, it is not equivalent to the population distribution between the two sectors. Single-family households typically have a greater average number of people per household than do multifamily households. For purposes of waste generation forecasting, assumptions were made to estimate population distribution. These assumptions are described further in Section 3.1.1.2.

City	2017 Population ¹	Occupied Housing Units ^{2,3}			Occupied Housing Unit Distribution ⁴	
		Total	Single-family ⁵	Multifamily	Single-family ⁵	Multifamily
Olathe	134,368	46,526	38,366	8,160	82%	18%
Overland Park	186,147	76,621	53,824	22,797	70%	30%
Prairie Village	21,932	9,677	8,618	1,059	89%	11%
Roeland Park	6,810	2,990	2,683	307	90%	10%
Shawnee	64,840	24,390	19,716	4,674	81%	19%
Spring Hill	6,064	2,033	1,784	249	88%	12%
Westwood	1,720	740	740	0	100%	0%
Westwood Hills	394	179	177	2	99%	1%
Unincorporated ²	4,509	1,374	1,061	313	77%	23%
Johnson County Totals	578,797	224,177	173,135	51,042	77%	23%

¹ Source: U.S. Census Bureau 2017 5-Year Population and Housing Characteristic Estimates.

² Estimates of occupied housing units are provided and utilized in solid waste generation estimates and projections included in this SWMP because waste is not generated from vacant housing units.

³ Number of occupied single-family and occupied multifamily housing units were estimated based on the overall housing occupancy rate for each city. Overall occupancy rates ranged from 90-100 percent by city. Actual occupancy rates for single-family and multifamily housing units may differ from the combined single-family and multifamily occupancy rate.

⁴ Distribution represents the total occupied household distribution between occupied single-family homes and occupied multifamily housing units and does not necessarily represent population distribution between household types.

⁵ Mobile units, including mobile homes, RVs, vans, boats, etc. are included in single-family housing unit estimates and account for less than one percent of all occupied housing units within the Johnson County.

Population Distribution by Residential Sector. In 2017, an estimated 82 percent of Johnson County's residents lived in single-family households and an estimated 18 percent lived in multifamily households.⁴ The annual growth rate of the County population from 2012-2017 was applied to estimate the 2018 population and distribution between single-family and multifamily households.⁵ The 2018 estimated total population living in single-family housing units was used to inform the residential solid waste generation projections. Multifamily solid waste generation is included in the commercial projections (Section 3.5).

⁴ This estimate is based on the 2017 overall average persons per household (2.58) calculated from U.S. Census Bureau 2017 5-Year housing and population estimates. Typically, average persons per household is greater for single-family households than multifamily households. To estimate single-family and multifamily population distribution, assumptions of 2.7 persons per single-family household and 2.1 persons per multifamily household were utilized. These assumptions were used to project the waste generation distribution through 2044, presented in Section 3.5.

⁵ This methodology was used to estimate 2018 population because U.S. Census Bureau 2018 5-year population estimates were not available at the time of adoption of the SWMP. 2017 estimated persons per household and estimated population distribution between single-family and multifamily households were used for 2018 estimates and held constant for population and residential waste generation projections through 2044.

The 2018 estimated single-family and multifamily household and population distributions are shown in Table 3-4.

Table 3-4: 2018 Estimated Single-family and Multifamily Population Distribution

	Occupied Households	Population	Population Percent
Single-Family	175,163	478,071	82%
Multifamily	51,640	107,508	18%
Total	226,804	585,579	

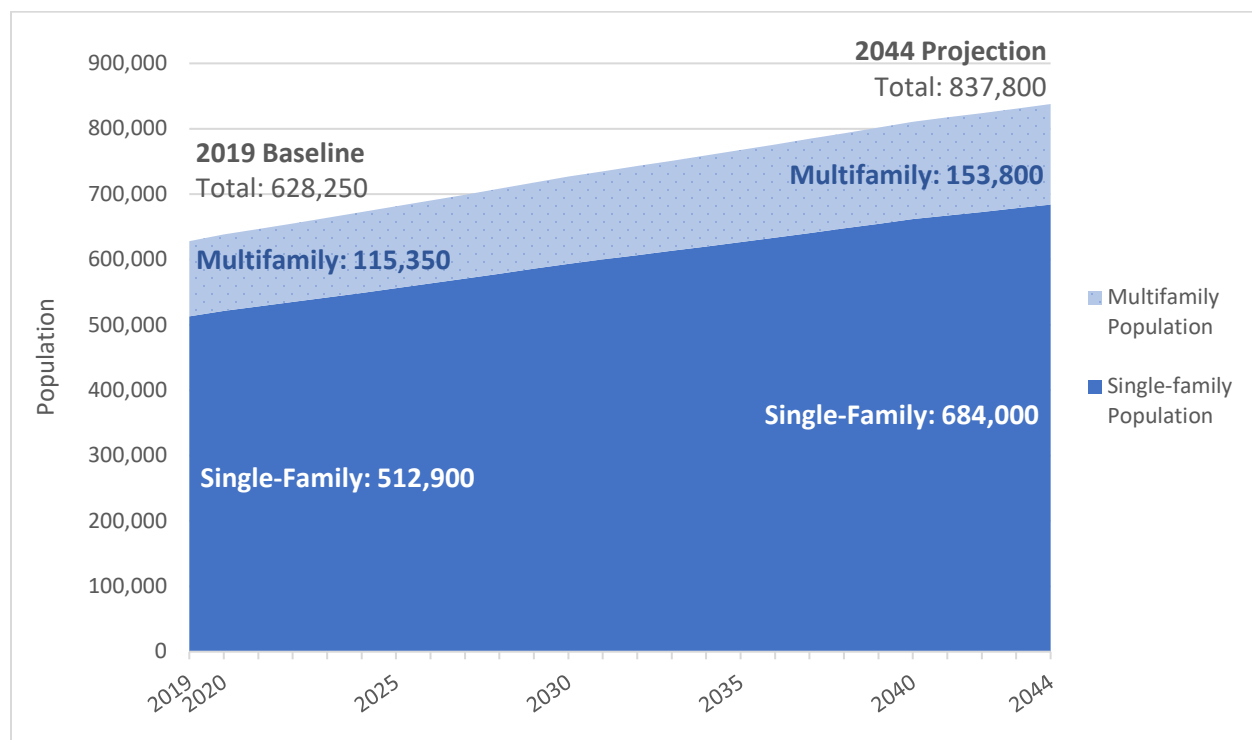
3.1.2 Population Projections

The Mid-America Regional Council (MARC) previously developed the 2040 Forecast to provide estimated number and distribution of population, households and employment by county for the Kansas City region.⁶ Burns & McDonnell extrapolated the projection for Johnson County to estimate the total population through the end of the 2044 planning period.⁷ Population projections indicate that the total Johnson County population may grow to approximately 838,000 people in 2044, a total increase of 43 percent from the estimated 2018 population of 585,600.

Population growth utilized in projections was based on MARC's total projected County population and single-family and multifamily projected population distribution was based on the respective population distributions presented in Section 3.1.1.2 and held constant through 2044. Single-family population projections were utilized as the basis for the residential waste generation forecast. Figure 3-2 shows the projected single-family and multifamily population growth of the County over the next 25 years, from 2019 through 2040.

⁶ Source: MARC 2040 Forecast. Population, household, and employment forecasts were based on 2010 Decennial Census data and used to inform the development of Transportation Outlook 2040, metropolitan Kansas City's long-range transportation plan. Retrieved December 2018 from <http://www.to2040.org/forecast.aspx>

⁷ MARC developed the population projections on a 10-year increment basis. To estimate population growth for Johnson County on an annual basis and extrapolate projections through the end of the 2044 planning period, Burns & McDonnell calculated compound annual growth rates of the ten-year projection intervals.

Figure 3-2: 2019-2044 Johnson County Population Projections

¹ Source: MARC 2040 Forecast. The 2018 Johnson County population estimate based on MARC's 2040 forecast is approximately 618,300. The estimated 2018 population based on the Census Bureau's population estimates for 2012-2017 is approximately 585,600, a difference of 32,700 people. Population projections based on MARC's 2040 Forecast were used as the basis for the residential solid waste generation forecast to provide conservative estimates (based on per-capita generation rates) and appropriately plan for the potential solid waste quantities the County may need to manage in the future.

3.2 Economic Characteristics

This section describes the County's historic, current and projected employment levels, utilized as an indicator of economic growth.

3.2.1 Historic and Current Employment

In 2016, the total number of people employed within Johnson County was approximately 331,000. The County has experienced increased employment growth, with total growth from 2010 to 2016 at 8.9 percent, in contrast to total growth from 2005 to 2010 of 1.4 percent.⁸

Based on 2016 employment distribution by industry, the County's workforce is diversified, with no single industry accounting for greater than 12 percent of total employment. The health care and social

⁸ Source: U.S. Census Bureau, 2016 Business Patterns, County Business Patterns, Johnson County, Kansas. Retrieved June 2019 from <https://www.census.gov/newsroom/press-releases/2018/county-business-patterns.html>; and U.S. Department of Labor, Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages. Retrieved December 2018 from <https://data.bls.gov/PDQWeb/en>

assistance and the retail trade industries are the largest industries by employment, each with approximately 12 percent of the total workforce. Then next largest industries are professional, scientific, and technical services, accommodation and food services, finance and insurance, and administrative and support services, each with eight to nine percent of the total workforce.

Table 3-5 provides historic employment growth by industry from 2005 to 2016.

Table 3-5: Johnson County Employment Growth by Industry (2005-2016)¹

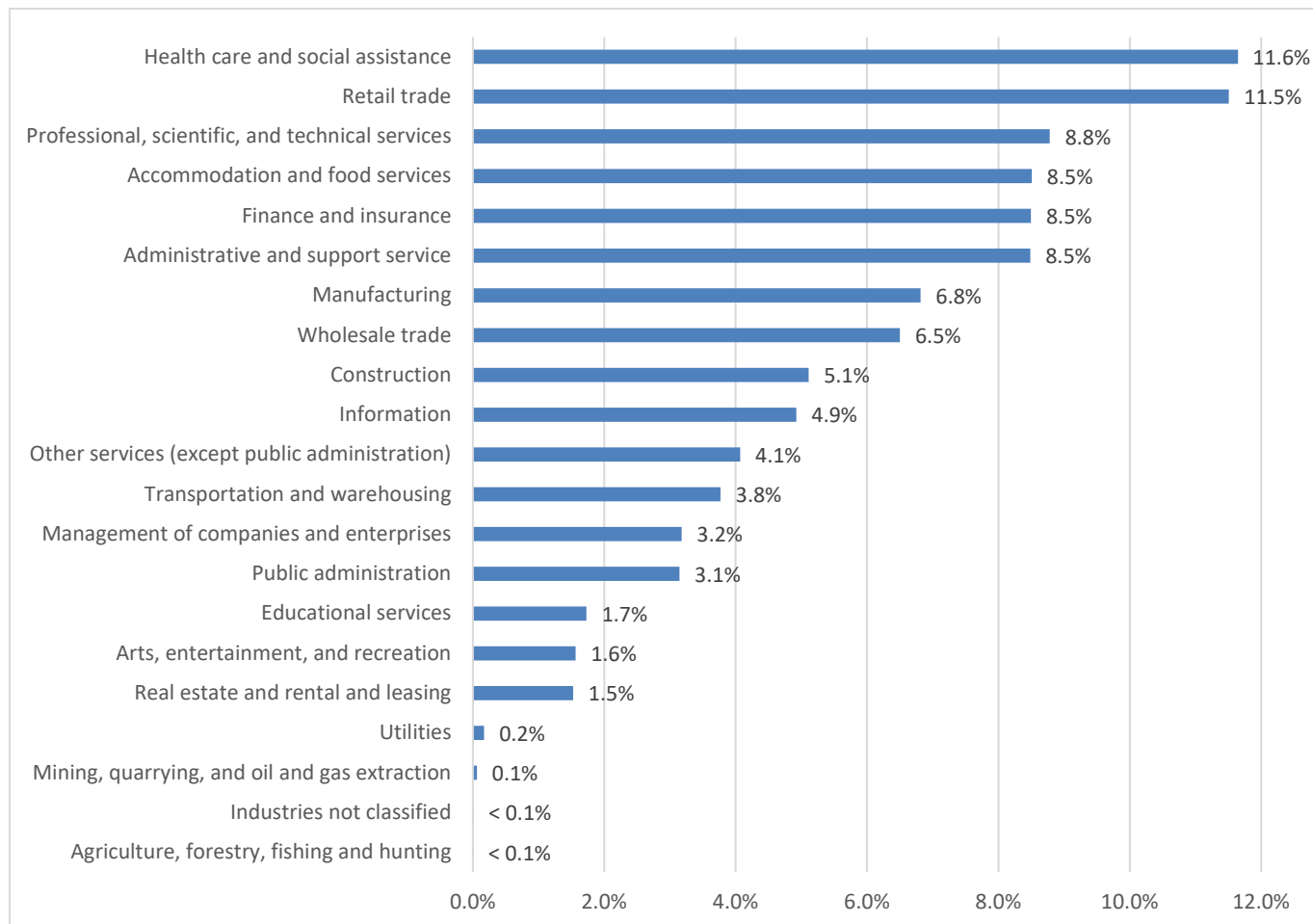
Industry	2005	2010	2016	Recent Annual Growth, 2010-2016
Agriculture, forestry, fishing and hunting	10	5	14	30.0%
Mining, quarrying, and oil and gas extraction	331	244	198	-3.1%
Utilities	512	355	560	9.6%
Construction	14,973	12,964	16,910	5.1%
Manufacturing	20,078	20,380	22,545	1.8%
Wholesale trade	18,035	21,656	21,505	-0.1%
Retail trade	36,943	35,728	38,068	1.1%
Transportation and warehousing	11,362	12,171	12,470	0.4%
Information	22,490	21,297	16,288	-3.9%
Finance and insurance	23,958	25,123	28,105	2.0%
Real estate and rental and leasing	5,723	5,247	5,051	-0.6%
Professional, scientific, and technical services	26,159	27,436	29,053	1.0%
Management of companies and enterprises	10,603	8,845	10,513	3.1%
Administrative and support service	24,890	23,954	28,072	2.9%
Educational services	4,078	4,925	5,720	2.7%
Health care and social assistance	28,107	33,306	38,535	2.6%
Arts, entertainment, and recreation	4,449	4,282	5,170	3.5%
Accommodation and food services	24,281	23,906	28,146	3.0%
Public administration ²	10,664	9,567	10,404	1.5%
Other services	11,928	12,443	13,456	1.4%
Industries not classified	265	11	29	27.3%
Johnson County Totals	299,639	303,845	330,812	1.5%

¹ Source: U.S. Census Bureau, 2016 Business Patterns, County Business Patterns, Johnson County, Kansas. Industries are based on 2-digit North American Industry Classification System (NAICS) codes. U.S. Census Bureau data does not include self-employed individuals, employees of private households, or government employees (public administration). Retrieved June 2019 from <https://www.census.gov/newsroom/press-releases/2018/county-business-patterns.html>

² Source: U.S. Department of Labor, Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages, NAICS code 92, Public Administration. Retrieved December 2018 from <https://data.bls.gov/PDQWeb/en>

Figure 3-3 provides 2016 employment distribution by industry for the total 331,000 employees within the County.

Figure 3-3: 2016 Johnson County Employment Distribution by Industry



Sources: U.S. Census Bureau, 2016 Business Patterns, County Business Patterns, Johnson County, Kansas. Retrieved June 2019 from <https://www.census.gov/newsroom/press-releases/2018/county-business-patterns.html>; U.S. Department of Labor, Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages, NAICS code 92, Public Administration. Retrieved December 2018 from <https://data.bls.gov/PDQWeb/en>

In 2016, there were approximately 17,900 business establishments within Johnson County, a six percent increase from 2010. When compared with a nine percent increase in the total workforce over the same period, this indicates that the County attracted new business establishments as well as supported the growth of its existing businesses during that time.

3.2.2 Employment Projections

Employment projections from the MARC 2040 Forecast were used as the basis for the commercial sector MSW generation forecast. Burns & McDonnell extrapolated the projection for Johnson County to

estimate the total employment through the end of the 2044 planning period.⁹ Per-employee generation rates for commercial MSW and C&D debris are based on 2018 estimated monthly employment rates from the Bureau of Labor Statistics.¹⁰ County employment may grow to approximately 497,400 employees in 2044, a total increase of 52 percent from the estimated 2018 employment of 327,000.¹¹

The 2011 update to the 2004 Kansas City Metropolitan Area Long Range Forecast, segmented the employment into three broad sectors: retail, services, and other. Through 2040, the retail sector for Johnson County was projected to increase by 64 percent from 2010, compared with 41 percent for the Kansas City area overall. During the same period, employment in the service sector was predicted to increase by 114 percent compared to 79 percent for the Kansas City area overall.¹²

3.3 Methodology for Current and Forecasted Solid Waste Generation

Understanding current and projected solid waste generation, disposal, and recycling rates allows the County to appropriately plan for the types and quantities of material it will need to manage moving forward. Future solid waste management system requirements, including services, programs, and infrastructure are highly dependent on quantities of material and material type distribution. This section provides an understanding of the methodology utilized to develop current and projected quantities of generated, disposed, and recycled material for the residential and commercial sectors and (C&D) debris in Johnson County.

Current solid waste generation, recycling, and disposal data for the County is presented in Section 3.4. Future solid waste projections are presented in Section 3.5. For definitions of key terms pertaining to sectors, generation, and material types refer Section 1.5.

⁹ MARC developed the population projections on a 10-year increment basis. To estimate population growth for Johnson County on an annual basis and extrapolate projections through the end of the 2044 planning period, Burns & McDonnell calculated compound annual growth rates of the ten-year projection intervals.

¹⁰ Solid waste generation projection methodology is further described in Section 3.3. The source for the 2018 employment estimate differs from the data presented in Section 3.2.1 because U.S. Census Bureau County Business Pattern data was available only through 2016 at the time of SWMP adoption.

¹¹ Sources: MARC 2040 Forecast. The 2018 Johnson County employment estimate based on MARC's 2040 forecast is approximately 377,400. The U.S. Bureau of Labor Statistics' most recent employment estimate for 2017 is approximately 327,000, a difference of 54,400 employees. Employment projections based on MARC's 2040 Forecast were used as the basis for the commercial solid waste generation forecast, to provide conservative estimates based on per-employee generation rates and appropriately plan for the potential solid waste quantities the County will need to manage in the future.

¹² Source: Johnson County, Kansas Solid Waste Management Plan, 2013 Edition. More recent employment projections by sector or industry were not available.

The following data served as the basis for development of the solid waste generation projections, including MSW and C&D materials, for the County through the end of the SWMP planning period, in the year 2044.

- 2018 population and employment estimates
- 2018 solid waste generation data by sector and material type (presented in Section 3.4)
- Single-family population projections (Section 3.1.2)
- Employment projections (presented in Section 3.2.2)

This data was used to develop MSW generation projections for the residential and commercial sectors. As with any long-term planning activity, the development of the MSW generation projections required a number of assumptions to be made. The projections developed conservatively assume constant per-capita and per-employee waste generation rates and constant recycling rates, based on 2018 estimates. The County may be able to drive decreased waste generation and/or increased recycling rates through its continued programs and initiatives and the recommendations presented in this SWMP. Additional assumptions, data considerations, and limitations are described below.

3.3.1 Residential Methodology

Current residential MSW generation quantities are primarily based on required annual tonnage reports provided to JCDHE by residential haulers operating with the County. Hauler reports represent all reported materials collected curbside from single-family residential customers, including refuse, single-stream recyclables, and yard waste. Additional smaller quantities of material generated by single-family households, but which are not collected curbside, were obtained from the City of Olathe Transfer Station (yard waste, HHW and e-waste), Ripple Glass, and Johnson County HHW Collection Facility. Refer to Table 3-8 for a summary of 2018 residential material generation.

Population growth will drive the increase in residential MSW quantities the County will see over the planning period. The 2018 estimated single-family population (refer to Table 3-4) residing in Johnson County and the 2018 residential MSW generation quantities were utilized to estimate average residential sector generation on a per-capita basis for each applicable material type (refer to Table 3-8). Per-capita material generation estimates were applied to the single-family population projections to develop the total County residential MSW generation forecast through 2044.

3.3.2 Commercial Methodology

Haulers of commercial solid waste are not subject to the same JCDHE reporting requirements as residential haulers; commercial hauled tonnage data was not available from JCDHE. This section

describes the data and methodology utilized to develop the commercial MSW forecast, including refuse, recycling, and organics.

When comparing historical and current commercial generation data included in this SWMP (refer to Section 3.4.1.2), it should be noted that methodology utilized in estimating commercial MSW generation rates may not be consistent between prior versions of the SWMP and this 2018 SWMP update. Burns & McDonnell reviewed the 2013 SWMP with the intent of utilizing consistent methodology to the extent possible and made extensive attempts to obtain reliable data from various solid waste haulers operating within the County; however, attempts at contact were unsuccessful, or data did not appear to contain reliable data. A key recommendation for the commercial sector included in this plan (refer to Section 7.6) is for JCDHE to implement an ordinance that requires commercial haulers to become licensed through the County and report the amount of refuse, recyclables, and/or organics collected on an annual basis. Implementation of this recommendation would allow for consistent methodology and data tracking in the future and would allow the County to develop more reliable trends of commercial generation and recycling quantities over time.

Commercial refuse generation for 2018 was estimated utilizing various data sources. The total quantity of refuse delivered to the Johnson County Landfill that was generated in the state of Kansas was obtained from 2018 tonnage reports from KDHE. Refuse tonnage from multiple sources accounting for all non-commercial and all non-Johnson County MSW was then subtracted from the total tonnage to obtain an estimate of only the commercial (including multifamily) MSW tonnage generated within Johnson County.¹³ Commercial recycling generation for 2018 was estimated based on reported quantities from three facilities that accept the majority of commercial recyclable material generated within the County.¹⁴ Available data for organic material commercially generated within Johnson County was limited. Missouri Organics reported acceptance of 2,000 tons of commercial food waste in 2018, but no other data was available. Additional food waste and yard waste quantities that may have been generated by the

¹³ Johnson County Landfill tonnage report for MSW generated in Kansas obtained from KDHE Solid Waste Database Tonnage Report, 2018. From this tonnage, the following quantities were subtracted: Johnson County residential hauler self-reported tonnage; residential, multifamily residential, and commercial tonnage from Wyandotte County from 2015 SWMP with a 2 percent annual inflation; Miami County and Doniphan County Transfer Station tonnage from KDHE Solid Waste Database Tonnage Report, 2018; and City of Olathe Transfer Station C&D waste accepted, self-reported 60 percent of external waste accepted. A small quantity of commercial refuse generated in Johnson County and hauled by WCA but not disposed in the Johnson County Landfill was also added to the total Johnson County refuse generation quantity.

¹⁴ Reporting facilities include Waste Management Recycle America, MARCK Recycling, and Midwest Shredding.

commercial sector were not included in commercial waste generation data or commercial recycling estimates. Refer to Table 3-10 for a summary of current commercial material generation.

Current and projected commercial generation, recycling, and disposal quantities include material generated by multifamily residents within the County. Commercially generated material and material generated by multifamily residents is collected together by commercial haulers. Available material quantity data is generally tracked and reported with commercial and multifamily material combined, and a further break down of material by generator type was not available for purposes of developing current and projected generation quantities.¹⁵

The 2018 number of people employed within Johnson County and the 2018 total commercial material generation quantities were utilized to estimate average commercial sector generation rates on a per-employee basis for each applicable material type. Projected growth in employment is one approach to estimating the potential economic growth of the County, which will drive the increases in commercial MSW generation the County will see over the planning period. Per-employee generation rates were then applied to the employment projections to develop the total County commercial solid waste generation forecast through 2044.

3.3.3 C&D Debris Methodology

C&D debris quantities were obtained from data reported to KDHE by four regional C&D landfills and the Johnson County Landfill and C&D debris quantities reported from the Olathe Transfer Station¹⁶ The large majority of material disposed at the four C&D landfills originates in Johnson County.

The quantities of C&D material generated in Johnson County are dependent on the level of economic activity and growth. Because employment levels are also an indicator of economic growth, the 2018 and projected employees within the County were used as the basis for C&D debris generation projection, as with commercial projections. The estimated number of employees in 2018 and the 2018 C&D debris generation quantities were utilized to estimate average C&D debris generation rates on a per-employee

¹⁵ It is estimated that approximately 14 percent of commercial material generation estimates were generated from multifamily sources. This estimate was developed by applying the single-family per-capita generation to the current total estimated multifamily population. The actual multifamily per-capita generation rate may be lower than the single family per-capita generation rate based on the assumption that multifamily residents generate less material on average because they typically generate less bulk waste and little to no yard waste.

¹⁶ C&D landfills include Hamm Olathe Landfill, APAC-Stanley Landfill, and Asphalt Sales Company. KDHE tonnage reports for Johnson County Landfill identify C&D material tonnage delivered to the landfill and the assumption was made that approximately 50 percent of the total C&D debris originated within Johnson County. C&D debris received at the Olathe Transfer Station is disposed of at the Johnson County Landfill but is not included in the KDHE C&D debris tonnage data.

basis. Per-employee generation rates were then applied to the employment projections to develop the total County C&D debris generation forecast through 2044.

3.4 Current Solid Waste Generation, Recycling, and Disposal

In 2018, an estimated total of approximately 961,900 tons of solid waste were generated in Johnson County, including 659,900 tons of MSW (residential and commercial) and 302,000 tons of C&D debris. Of the total estimated waste generation in Johnson County 19.7 percent¹⁷ of material was recycled through residential and commercial recycling programs, including 142,650 tons of single-stream recyclables and 46,000 tons of organics.¹⁸ Figure 3-4 illustrates distribution of the County's current solid waste generation by sector and material type.

Figure 3-4: Current Solid Waste Generation Distribution by Sector and Type, Johnson County

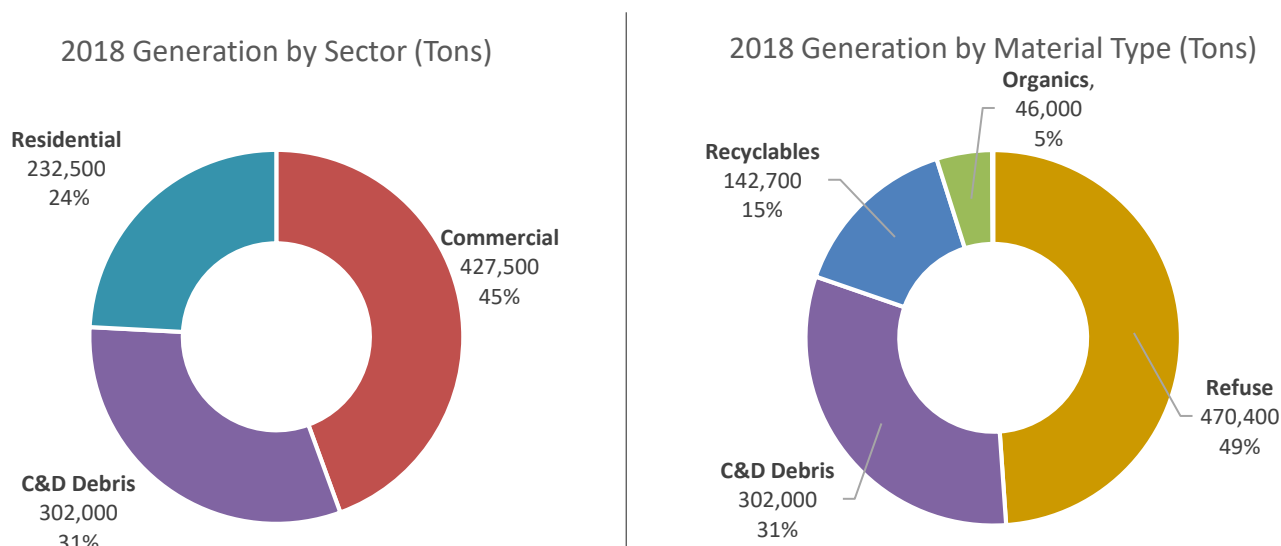


Table 3-6 provides a summary of 2018 total annual generation and per-person generation for the residential sector, commercial sector, and C&D debris. The generation data presented in Table 3-6 serves as the basis for projections in the waste generation forecast presented in Section 3.6.

¹⁷ Known quantities of recycled C&D debris accounted for another 0.02 percent of total County generation.

¹⁸ Total organic material diverted includes approximately 44,000 tons of residential organics (primarily yard waste) and 2,000 tons of commercial food waste. Data does not include an estimate of commercial yard waste generated because data was unavailable.

Table 3-6: 2018 Solid Waste Generation: Residential, Commercial, C&D Debris

Sector	Total Generation (Tons)	Total Population/ Employment ¹	Annual Generation Per Person/Employee
Residential ¹	232,461	478,071	1,109
Commercial	427,470	326,954	2,566
Total MSW Generation	659,931		
C&D Debris	301,992	326,954	1,847
Total Solid Waste Generation	961,924		

1 Residential total generation reflects the quantity of material generated by residents of single-family homes and total population reflects the total population residing in single-family homes within the County. Material generated by residents in multifamily homes is included in the commercial total generation.

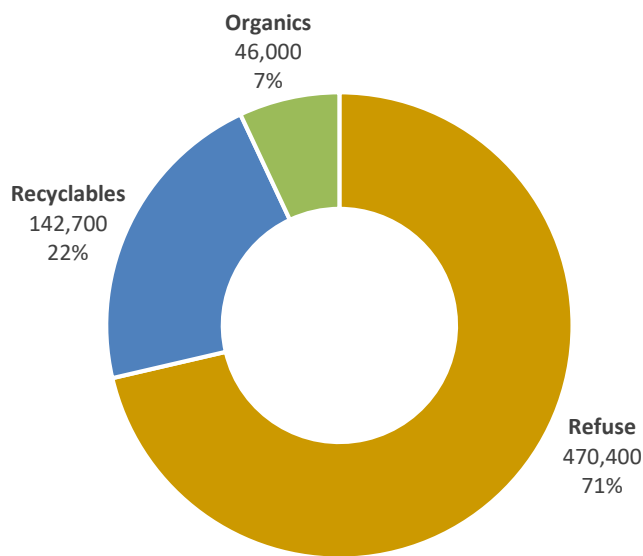
Table 3-7 provides a detailed understanding of current solid waste generation by sector and material type and provides each sector-specific recycling rate. The following sections provide further information regarding the generation, disposal, and recycling quantities in the residential and commercial sectors (Section 3.4.1) and for C&D debris (Section 3.4.2).

Table 3-7: Detailed 2018 Solid Waste Generation, by Sector and Material Type

Sector	Residential	Commercial	C&D Debris	Totals
Disposal				
Refuse	144,139	326,240		470,380
C&D debris			301,778	301,778
Total Disposal	144,139	326,240	301,778	772,158
Recycling				
Recyclables	43,421	99,230		142,651
Organics	44,025	2,000		46,025
HHW and E-waste	876			876
C&D debris			214	214
Total Recycling	88,322	101,230	214	189,766
Total Generation	232,461	427,470	301,992	961,924
Recycling Rate	38.0%	23.7%	0.1%	19.7%

3.4.1 MSW Generation, Recycling, and Disposal

In 2018, a total of approximately 659,900 tons of MSW was generated by the residential and commercial sectors within Johnson County. MSW includes all refuse, recyclables, organics (yard waste and food waste), and HHW and e-waste generated. Figure 3-5 illustrates total MSW distribution by material type.

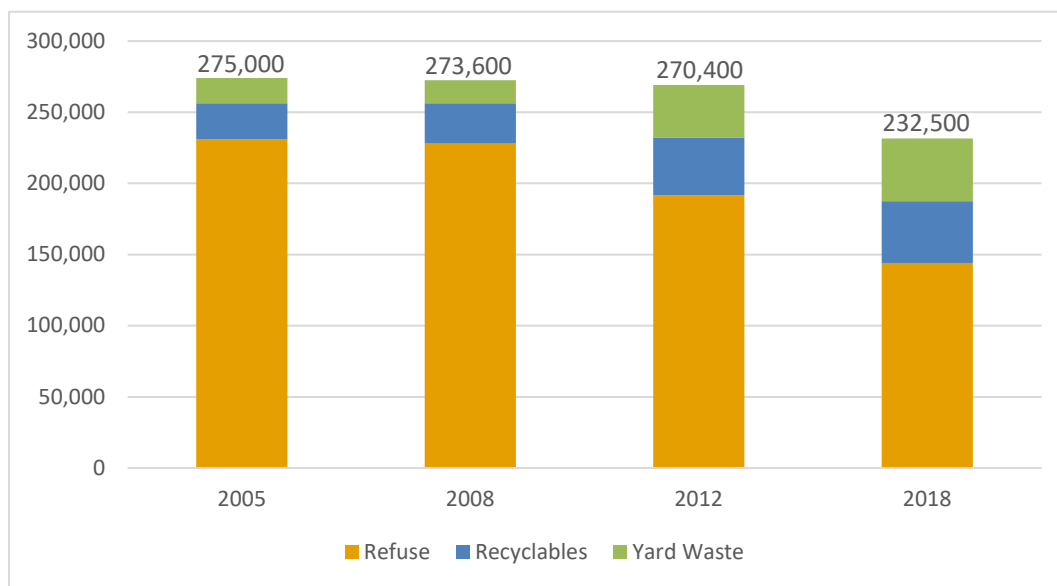
Figure 3-5: 2018 MSW Distribution (Residential and Commercial Sectors)¹

¹ Approximately 900 tons of HHW and e-waste, or 0.1 percent of total MSW generation, was also generated by the residential sector.

The overall MSW recycling rate for the residential and commercial sectors combined was 28.6 percent, consisting of 21.6 percent single-stream recyclables and 7.0 percent organics, of which the large majority was residential yard waste diverted from landfill disposal.

3.4.1.1 Residential MSW

Residential Generation: In 2018, Johnson County's residential sector generated a total of approximately 232,500 tons of MSW, equating to a total of 972 pounds of MSW per capita annually. Approximately 62 percent of residential MSW is disposed in landfills. Approximately 18.9 percent is recycled yard waste, 18.7 percent is recycled through curbside single-stream programs, and small quantities (less than one percent) is recycled through HHW and e-waste collection programs. Figure 3-6 shows how the generation of residential MSW by type has shifted over time, from 2005 to 2018. Total generation has decreased by approximately 37,900 tons per year during that time, and the distribution of material has shifted as well. This reasons for this change are discussed following Figure 3-6.

Figure 3-6: Residential MSW Generation Trends, 2005-2018 (Tons)¹

- 1 Sources: Data for years 2005, 2008, and 2012 are sourced from the 2013 Johnson County SWMP. Data for 2018 was developed through the methodology described in this section.
- 2 Small quantities of HHW and e-waste (less than one percent of total generation for each year) are not reflected in Figure 3-6.

Residential Recycling. As discussed in Section 2.3, Solid Waste Management Industry Trends, there are various methods for measuring generation and recycling rates, including on a per-capita basis. On average, each resident of Johnson County (living in a single-family home) generates a total of 972 pounds of MSW per year. This includes 603 pounds of material disposed in landfills, and a total of 366 pounds of material recycled through curbside collection or drop-off programs (single-stream recyclables and yard waste). Based on 2018 data, the County’s residential recycling rate is strong, at 38.0 percent. Table 3-8 provides a breakdown of the current residential disposal and recycling quantities on at a total and per-capita basis.

Table 3-8: 2018 Residential MSW Generation

MSW Type	Total Tons	Pounds per Capita	Percentage
Disposal			
Refuse	144,139	603.0	62.0%
Recycling			
Recyclables	43,421	181.7	18.7%
Yard Waste	44,025	184.2	18.9%
HHW	792	3.3	0.3%
E-waste	84	0.4	0.0%
Total Recycling	88,322	369.5	38.0%
Total Generation	232,461	972	

From 2005 to 2018, yard waste has grown to be the largest contributing factor to the overall recycling rate, making up 18.9 percent of all residential recycling in the County. Single-stream recyclables are 18.7 percent of recycling, while HHW and e-waste recycling is a small portion, at less than one percent each.

Residential MSW generation and recycling is often communicated on a per-capita basis. This information has been communicated on a per-capita basis in Table 3-8 to maintain consistency with the County's prior SWMP. Measuring residential generation and recycling on a per-household basis is another common metric utilized in many solid waste studies and planning efforts. Section 5.0, Single-Family Residential, provides further insight regarding residential recycling, and provides program performance information on a per-household basis.

Table 3-9 shows further detail in residential disposal and recycling trends in the County from 2005-2018. The overall recycling rate has more than doubled in that time, from 16.1 percent in 2005 to 38.0 percent in 2018.

Table 3-9: Residential MSW Recycling Trends, 2005-2018¹

MSW Type	2005		2008		2012		2018	
	Tons	Percent	Tons	Percent	Tons	Percent	Tons	Percent
Disposal								
Refuse	230,793	83.9%	227,898	83.3%	191,574	70.8%	144,139	62.0%
Recycling								
Recyclables	25,487	9.3%	28,310	10.3%	40,576	15.0%	43,421	18.7%
Yard Waste	17,691	6.4%	16,210	5.9%	36,933	13.7%	44,025	18.9%
HHW	0	0.0%	0	0.0%	108	0.0%	792	0.3%
E-waste	0	0.0%	0	0.0%	55	0.0%	84	0.0%
Bulky ²	1,110	0.4%	1,169	0.4%	1,183	0.4%	0	0.0%
Recycling Rate	16.1%		16.7%		29.2%		38.0%	

1 Sources: Data for years 2005, 2008, and 2012 are sourced from the 2013 Johnson County SWMP. Data for 2018 was developed through the methodology described in this section.

2 Small quantities of bulky waste recycling were reported in the 2013 Johnson County SWMP for years 2005, 2008, and 2012. No bulky waste recycling quantities were reported in data obtained for 2018.

The significant increase in the County's overall recycling rate is largely attributed to the increase in yard waste recycling, spurred by the ban on landfill disposal of yard waste materials implemented in 2012.

This single policy has had significant positive impacts on the County's overall residential recycling rate, diverting approximately 44,000 tons of material from landfill disposal in 2018.

HHW recycling quantities included in Table 3-9 capture material collected at the Johnson County HHW Facility and the City of Olathe's HHW Facility. E-waste quantities capture material collected through at the Johnson County HHW Facility. There are several additional drop-off locations and businesses that accept e-waste for recycling, but data is not available the additional quantities of e-waste materials recycled at these locations.

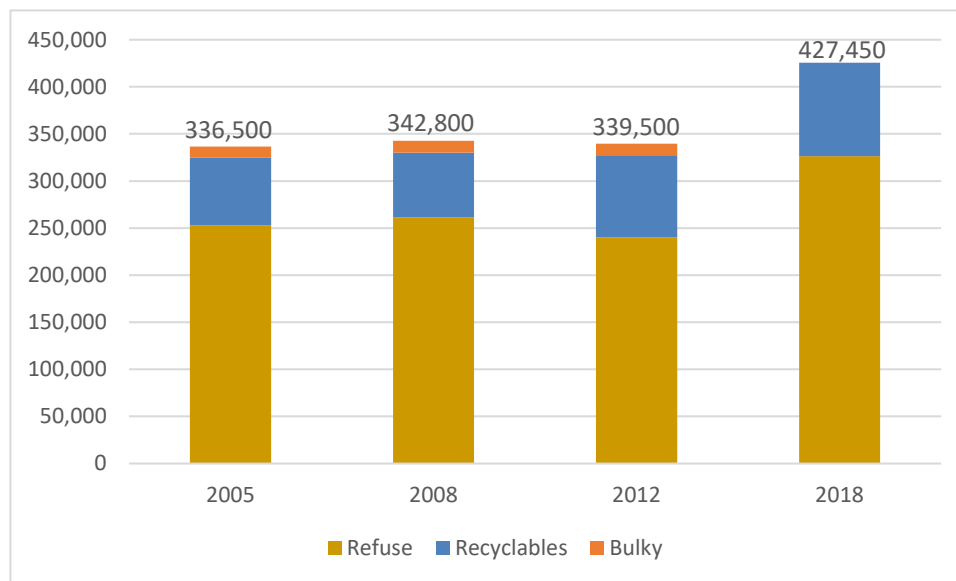
Various charitable entities, such as Goodwill, the Salvation Army, and religious institutions within the County accept clothing and household items for donation and reuse, which would otherwise be disposed in landfills with residential refuse. The quantities of residential reuse materials are unknown but are likely currently a small proportion of total MSW generation. Further discussion regarding residential recycling activities, material quantities, and potential strategies are presented in Section 5.0, Single-Family Residential.

3.4.1.2 Commercial MSW

Commercial Generation: Based on available data, Johnson County’s commercial sector generated a total of approximately 427,500 tons of MSW in 2018.¹⁹ Approximately 76 percent of commercial MSW is disposed in landfills and approximately 24 percent is diverted through recycling programs. On a per-employee basis, the average commercial generation rate was 2,615 pounds of MSW per year. This includes 1,996 pounds of material disposed in landfills, and a total of 619 pounds of material diverted from landfill disposal through recycling programs.

Figure 3-7 shows how the generation of residential MSW by type has shifted over time, from 2005 to 2018. While commercial generation appears to have increased significantly between 2012 and 2018, recommendations for the commercial sector presented in Section 7.6 would help to ensure consistent data tracking processes and methodology for developing trends in future SWMP updates. Commercial MSW quantities include material generated from both commercial entities and multifamily residents because these waste streams are collected together by commercial haulers and separate data is not currently available.

Figure 3-7: Commercial MSW Generation Trends, 2005-2018 (Tons)¹



- 1 Sources: Data for years 2005, 2008, and 2012 are sourced from the 2013 Johnson County SWMP. Data for 2018 was developed through the methodology described in this section.
- 2 Data for estimated diversion of bulky waste was unavailable for 2018.
- 3 In 2012, 4,300 tons of organics were reported diverted. In 2018, 2,000 tons of organics were reported diverted. These figures do not include yard waste that may have been diverted by commercial entities or private landscape contractors.

¹⁹ An estimated 13-14 percent of commercially-generated MSW was generated by multifamily households.

Commercial Recycling. In 2018, the overall commercial recycling rate for Johnson County was 23.7 percent. Table 3-10 provides a breakdown of the current commercial disposal and recycling quantities on a total and per-employee basis. Data regarding diversion of organic materials (yard waste and food waste) was limited; however, because yard waste is banned from landfill disposal, it is likely that the actual overall commercial recycling rate may be higher due to material diverted from landscaping activities.

Table 3-10: 2018 Commercial MSW Generation

MSW Type	Total Tons	Pounds per Employee	Percentage
Disposal			
Refuse	326,240	1,996	76.3%
Recycling			
Recyclables	99,230	607	23.2%
Organics	2,000	12	0.5%
Total Recycling	101,230	619	23.7%
Total Generation	427,470	2,614	

- 1 Organics recycling data includes commercial food waste quantities reported by Missouri Organics. It does not include yard waste that may have been diverted by commercial entities or private landscape contractors.

Commercial MSW generation and recycling may be communicated on a per-employee basis. This methodology differs from that of the 2013 SWMP; however commercial generation projections presented in Section 3.5 were developed utilizing employment projections and current per-employee generation rates. This allows for projections that are linked more closely to economic activity within the County than a methodology that utilizes population levels for commercial generation estimates. Section 7.0, Commercial, provides further insight regarding commercial recycling.

Table 3-11 shows further detail in commercial disposal and recycling trends in the County from 2005-2018.

Table 3-11: Commercial MSW Recycling Trends, 2005-2018¹

MSW Type	2005		2008		2012		2018	
	Tons	Percent	Tons	Percent	Tons	Percent	Tons	Percent
Disposal								
Refuse	253,033	75.2%	261,577	76.3%	239,919	70.7%	326,240	76.3%
Recyclables	71,799	21.3%	68,490	20.0%	87,406	25.7%	99,230	23.2%
Bulk Waste	11,648	3.5%	12,760	3.7%	12,202	3.6%	0	0.0%
Organics	0	0.0%	0	0.0%	4,332	1.3%	2,000	0.5%
Recycling Rate	24.8%		23.7%		30.2%		23.7%	

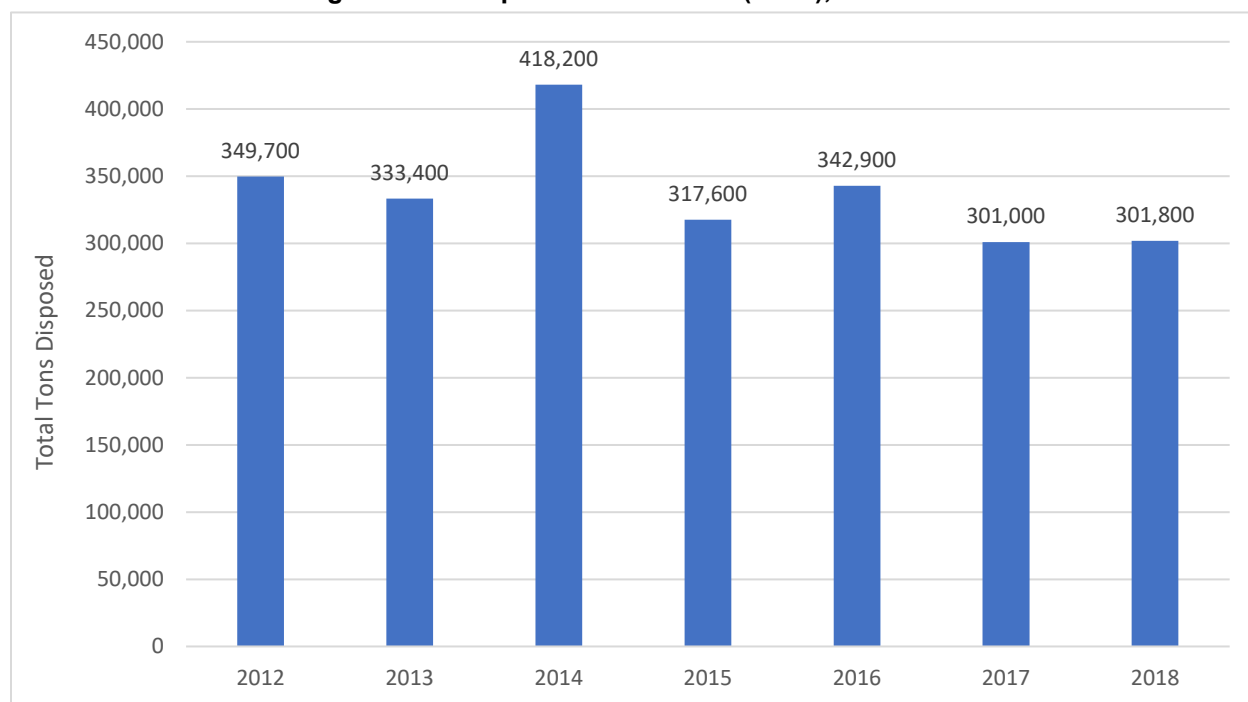
1 Sources: Data for years 2005, 2008, and 2012 are sourced from the 2013 Johnson County SWMP. Data for 2018 was developed through the methodology described in this section.

2 Bulky waste diversion quantities were reported in the 2013 Johnson County Solid Waste Data for estimated diversion of bulky waste was unavailable for 2018. Small quantities of bulky waste recycling were reported in the 2013 Johnson County SWMP for years 2005, 2008, and 2012. No bulky waste recycling quantities were reported in data obtained for 2018.

3.4.2 Construction and Demolition Generation, Recycling, and Disposal

C&D Debris Generation. Most C&D material generated in Johnson County is disposed of at C&D landfills, including APAC-Stanley, Hamm Olathe C&D Landfill, and Asphalt Sales Company, or at Johnson County Landfill, a portion of which flows through the City of Olathe Transfer Station.

Approximately 301,800 tons of C&D debris was disposed in 2018. Figure 3-8 shows how the quantities of C&D material disposed at these landfills has varied during from 2012 through 2018. Generation and disposal quantities of C&D debris generally corresponds with economic activity and the number and size of residential, commercial, and transportation (roadways and bridges) projects that are occurring. Though C&D quantities have fluctuated since 2012, the generation will likely see a long-term upward trend as the region continues to grow and economic activity increases (refer to employment projections presented in Section 3.2.2).

Figure 3-8: Disposed C&D Debris (Tons), 2012-2018

Source: KDHE Online Facility Database, Quarterly Disposal Reports; City of Olathe Transfer Station C&D tonnage.

C&D Debris Recycling. Recycling of C&D debris is a challenge, due to the often mixed nature of material generated by projects, special collection or hauling needs, and specialized equipment required to separate or process materials. C&D debris represents 31 percent of the County’s current total waste stream and 39 percent of all solid waste disposed in landfills. It presents a significant opportunity to increase the County’s landfill diversion through recycling.

Available data on quantities of recycled C&D debris are limited, and most material is disposed. Current C&D recycling efforts are described in Section 8.0, Construction and Demolition.

3.5 Projected Solid Waste Generation, Recycling, and Disposal

Utilizing the methodology and data described herein, Burns & McDonnell developed a forecast of the County’s solid waste generation over the 25-year planning period. Per-capita and per-employee material generation rates were assumed to remain constant through the duration of the planning period to provide conservative total quantity estimates for management purposes. Recycling rates was also assumed to

remain constant. The County could see decreased per-capita and per-employee generation rates and/or increased recycling rates if continued solid waste reduction and recycling initiatives are impactful.²⁰

Figure 3-9 presents the projected solid waste generation for the residential, commercial, and C&D sectors through 2044, based on current generation levels and population and employment projections.

Figure 3-9: 2019-2044 Johnson County Solid Waste Generation Forecast by Sector (Tons)

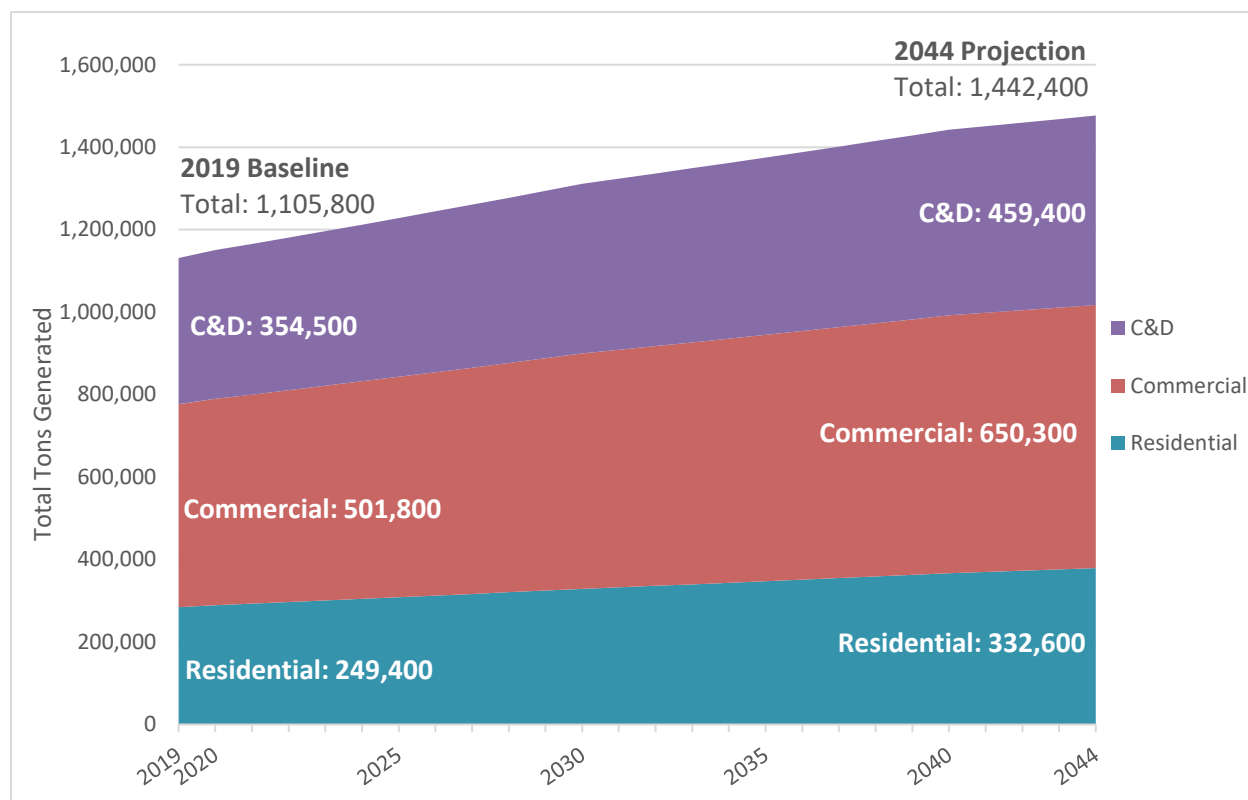


Table 3-12 provides further detailed projections, presenting the estimated quantities of solid waste that may be disposed and recycled at a series of points during the 25-year period. This table summarizes the scenario where the current levels of solid waste generation and recycling rates (per resident and per employee) are maintained. Disposal includes disposed refuse and disposed C&D debris. Recycling includes all material generated that is recovered through various recycling activities. Disposal and recycling quantity estimates increase in relation to projected increases in population and employment.

²⁰ There is potential for decreased per-capita and per-employee generation and decreased rate of material generation growth. However, the County is projected to see significant growth in population and employment and it is therefore unlikely that total generation quantities would decrease in the future.

Table 3-12: 2019-2044 Johnson County Solid Waste Generation, Disposal, and Recycling Forecast (Tons)

	2019	2025	2035	2044
Residential				
Disposal	154,648	167,676	188,941	206,225
Recycling	94,761	102,744	115,774	126,365
Commercial				
Disposal	383,002	415,877	464,633	496,327
Recycling	118,842	129,044	144,172	154,006
C&D Debris				
Disposal	354,283	384,694	429,793	459,111
Recycling	251	273	305	326
Total				
Total Disposal	891,933	968,247	1,083,367	1,161,663
Total Recycling	213,855	232,061	260,251	280,697
Total Generation	1,105,788	1,200,308	1,343,619	1,442,360

3.6 Waste Characterization

Waste characterization is the analysis of the composition of a waste stream on a detailed level. A waste characterization study includes sorting refuse material into material types to identify the amounts of paper, glass, plastic, food waste, etc. that make up the material that is disposed in landfills. This information is valuable identifying and targeting material types or other challenges for future planning efforts and informing the development of recycling programs and educational campaigns. Waste characterization results can give an understanding of the types and quantities of recyclable materials that are currently being disposed in landfills, and therefore the potential for increased material recovery and increased recycling rates.

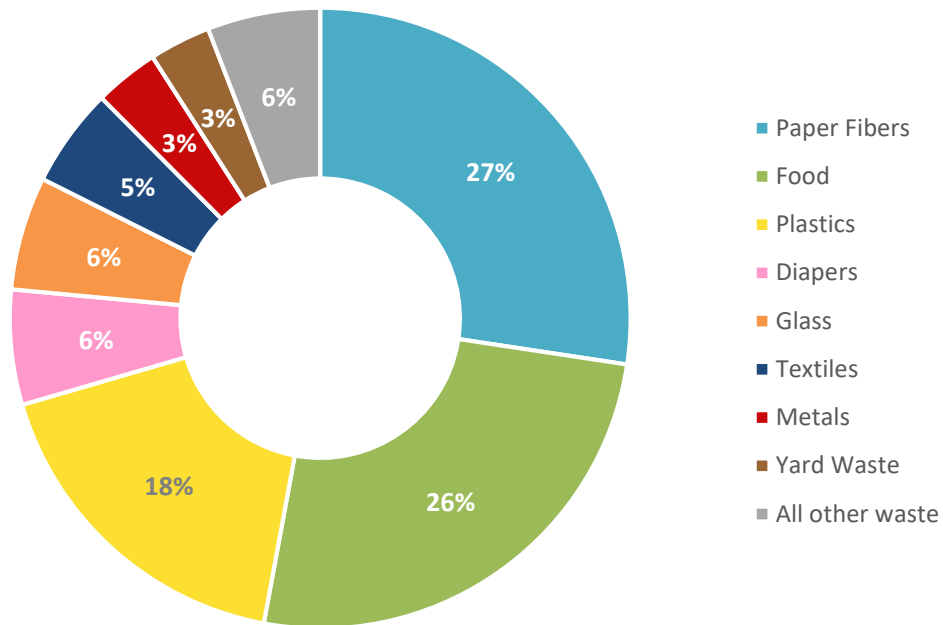
Composition of MSW material disposed in landfills (including recyclable and non-recyclable material) varies from region to region based on many factors, such as ratio of residential to commercial sectors, access to recycling programs, and vegetative growth. The materials that are currently disposed include both recyclable and non-recyclable materials, but the proportions of material that could potentially be recycled versus material that would continue to be disposed are not known. It is important to recognize that there are challenges to capturing all material that seemingly has the potential to be recycled. Even if a material has the potential to be recycled or diverted, it may be impractical from a cost and/or environmental perspective for all material to be recycled due to factors such as:

- Lack of recycling infrastructure
- Contamination of recyclable materials
- Access to end markets
- Need for additional public education and outreach

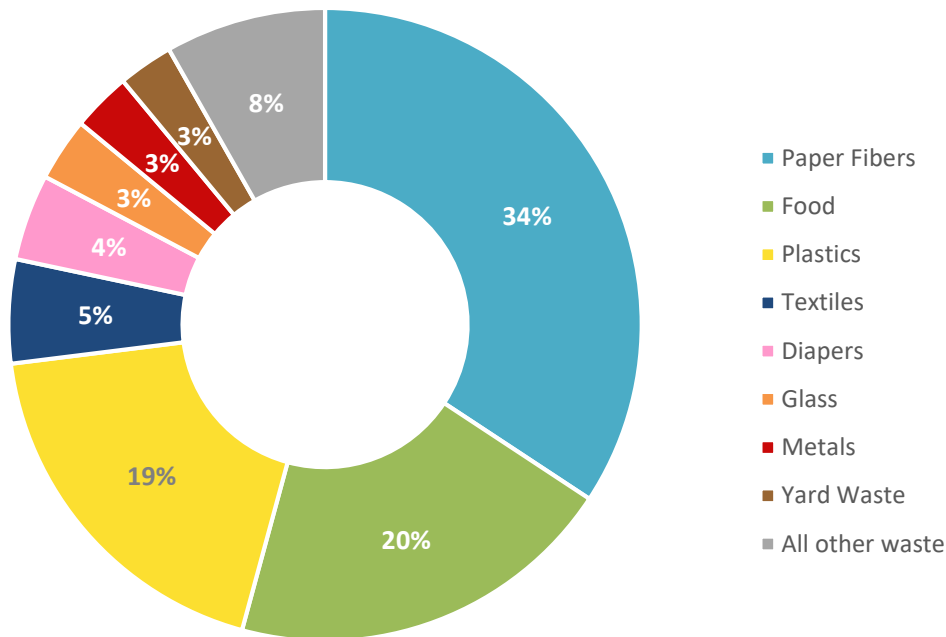
In 2015 and 2016 JCDHE commissioned a series of waste characterization studies at three of Johnson County's largest waste disposal and management facilities including Johnson County Landfill, the City of Olathe transfer station, and the Hamm Olathe C&D Debris Landfill.²¹ This section presents the results of these waste characterizations for MSW material generated in Johnson County by sector (residential and commercial) and for C&D materials generated within the County. Detailed material type distribution data was obtained for MSW. Due to the nature of C&D material types and disposal operations, C&D characterization information is largely observational.

Residential Waste Characterization. Figure 3-10 presents the residential waste characterization for Johnson County. Paper fibers (27 percent) and food waste (26 percent) are the two most abundant material types, together comprising over 50 percent of all residential MSW disposed in landfills. Plastics account for another 18 percent of disposed residential MSW. In many residential waste streams, yard waste is a prominent component, but JCDHE's ban on landfill disposal of yard waste has been successful in diverting material for recycling, making yard waste only three percent of the total residential MSW stream in Johnson County.

²¹ Source: Johnson County Solid Waste Characterization Study, September 30, 2016. Prepared by Engineering Solutions & Design, Inc. Available online at <https://www.jocogov.org/dept/health-and-environment/environment/solid-waste/sw-mgmt-plan>

Figure 3-10: Residential MSW Waste Characterization, Johnson County

Commercial Waste Characterization. Figure 3-11 presents the commercial waste characterization for Johnson County. The three most abundant types of disposed commercial MSW are the same as for residential MSW, with paper fibers, food waste, and plastics making up 34 percent, 20 percent, and 19 percent, respectively, of the total commercial waste stream. The high percentage of paper fibers can likely be attributed to the large volumes of cardboard and office paper generated by many businesses.

Figure 3-11: Commercial MSW Waste Characterization, Johnson County

C&D Waste Characterization. Details material type distribution data was not available for landfilled C&D Debris. Available data indicates the proportion of disposal loads hauled to the Hamm Olathe C&D Landfill that contained each type of material.²² Scrap lumber was the most frequently observed type of material, present in 85 percent of loads observed. Cardboard, metals, and plastics were observed in 71 percent, 63 percent, and 50 percent of observed loads, respectively. Other material types observed in more than 40 percent of loads included insulation, plastic film and plastic bags, drywall, carpet, and wood pallets.

²² Results discussed in this section include combined results for waste sorts conducted at the Hamm Olathe landfill in 2015 and 2016 for waste originating in Kansas. 92 percent of the loads analyzed originated in Johnson County.

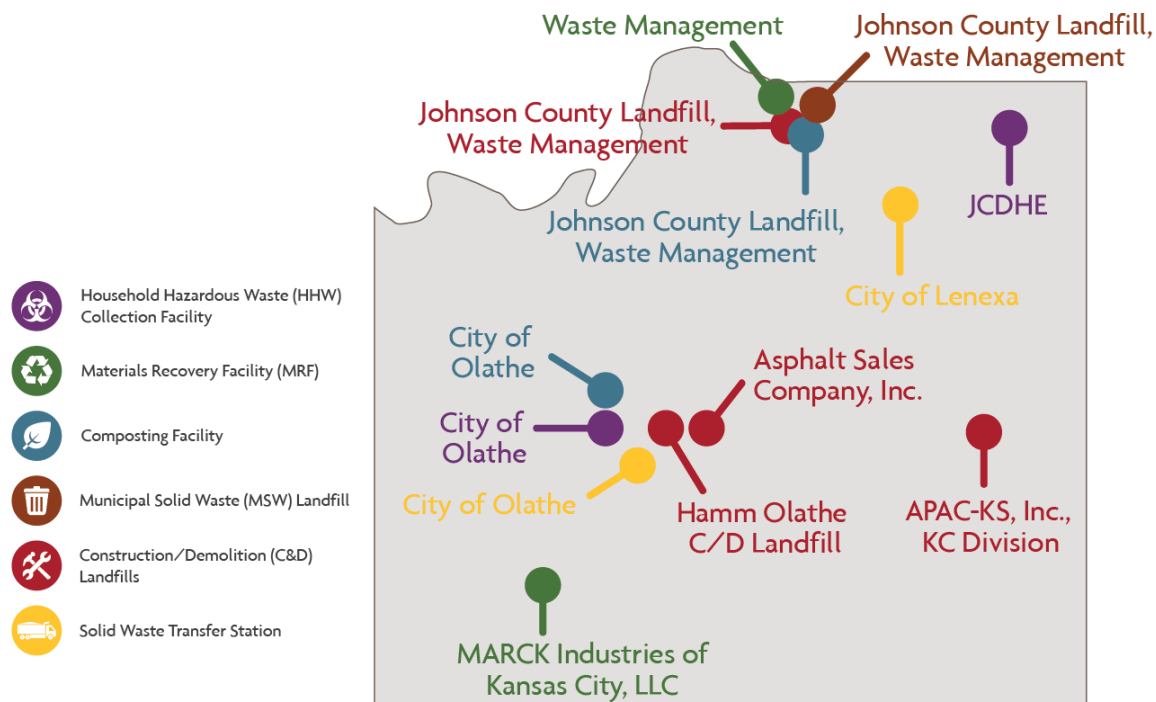
4.0 FACILITIES

4.1 Current System Review

Consideration of solid waste processing and disposal facilities on both a regional and local level is essential for the future of MSW management for the County. The availability of local processing and disposal facilities will impact many of the decisions the County makes regarding MSW management and the structure in which residents and commercial establishments are provided solid waste services and the timing for implementation of various recommendations. This section provides an overview of existing MSW processing and disposal facilities located within the County and the surrounding region, including landfills, MRFs, transfer stations, organics processing facilities, and HHW processing facilities.

Figure 4-1 identifies locations of each solid waste facility in Johnson County. Additional regional facilities and their remaining life are discussed within this section.

Figure 4-1: Johnson County Solid Waste Facilities



4.1.1 Landfills

Landfill capacity is a finite resource in the region and permitting new landfills is becoming increasingly difficult (as discussed in the Landfill Trends portion of Section 2.3). Increasing recycling and organic material diverted would serve to ease the constraint of disposal capacity in the future. This section

provides an overview of regional landfill facilities, quantities and types of materials disposed, and provides an estimate of when landfills may reach capacity.

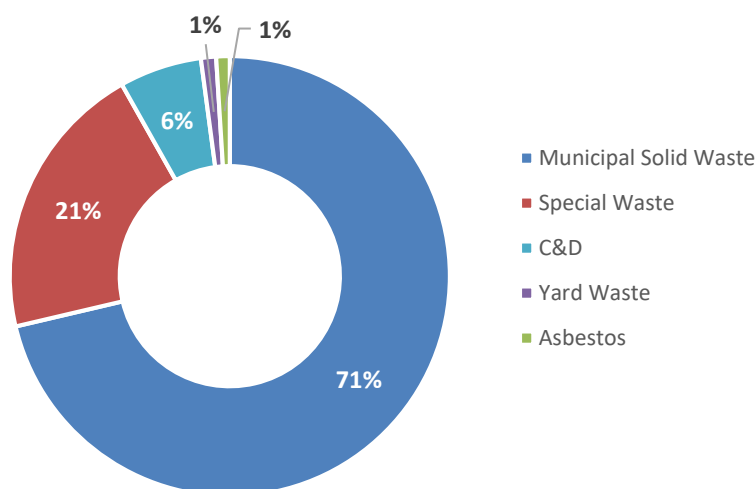
MSW Landfills. There is currently only one Subtitle-D landfill located within Johnson County; however, there are additional regional Subtitle-D landfills which currently accept or could potentially accept MSW from the County. Table 4-1 identifies the Subtitle-D landfills currently in operation in the region and provides disposal and remaining capacity data. The Lee's Summit Resource Recovery Park ceased acceptance of MSW in April of 2019 and will begin final closure.¹

Table 4 1: Regional Subtitle-D Landfill Disposal and Remaining Capacities

State	County	Permit Holder/Site Name	Annual Waste Accepted ² (Tons)	Estimated Remaining Life ² (Years)
KS	Johnson	Johnson County (Waste Management)	1,287,048	>20
KS	Jefferson	Hamm Landfill	399,208	>80
KS	Shawnee	Rolling Meadows (Waste Management)	234,810	>40
MO	Pettis	Central Missouri Landfill (WCA)	450,849	<10
MO	Jackson	Sugar Creek Landfill (Courtney Ridge/Republic Services)	687,344	>30
MO	Buchanan	St. Joseph Landfill	129,523	>20
MO	Jackson	Lee's Summit Resource Recovery Park	202,171	0
MO	Johnson	Show-me Regional Landfill (Allied/Republic)	88,425	>30

Johnson County Landfill. The Johnson County Landfill, privately owned and operated by Waste Management, Inc., is the primary disposal location for solid waste generated in Johnson County. The 850-acre property includes 500 acres permitted for waste disposal of MSW and C&D waste; however, an update to the County Solid Waste Management Code in 2010 restricted disposal of yard waste generated within the County in the landfill. As shown on Figure 4-2, a small amount of yard waste is still disposed of within the landfill, which is generated in other counties. In 2018, a more significant amount of C&D waste was disposed in the landfill. During the years of 2014-2018, the average percent of waste disposed which was C&D waste was approximately 2.5 percent. Special waste, commonly contaminated soil, accounts for 21 percent of waste disposed and is received from many regional communities and industrial applications.

¹ Source: <https://www.kshb.com/news/local-news/lees-summit-landfill-closes-after-reaching-trash-capacity>

Figure 4-2: 2018 Disposal Composition at Johnson County Landfill²

Quantities of materials disposed at the Johnson County Landfill are reported to KDHE and to JCDHE, as required by their solid waste permit, and are summarized in Table 4-2.

Table 4-2: Solid Waste Disposed of at the Johnson County Landfill Annually (Tons)³

Year	MSW	Special Waste	Asbestos	Yard Waste	C&D Waste	Total
2018	918,063	263,921	12,801	14,312	77,951	1,287,048
2017	990,956	273,102	3,363	18,892	16,902	1,303,215
2016	1,030,916	307,203	2,598	21,810	1,030,916	1,377,677
2015	1,069,458	237,775	4,435	25,927	25,295	1,362,890
2014	1,087,941	244,162	8,013	23,976	30,803	1,394,895

The Johnson County Landfill serves as one of two regional landfills in the Kansas City Metropolitan area. Based on KDHE Tonnage Reports, 69 percent of waste disposed of at the landfill is generated in Kansas and 31 percent of waste disposed of at the landfill is generated in Missouri. Insignificant amounts of waste have been authorized for disposal at the landfill from neighboring states of Nebraska, Illinois, and Oklahoma, as needed. The current tipping fee for the Johnson County Landfill is \$77.20 for a pickup truck or \$60.65 per ton with premiums added on the weekend.

Sugar Creek Landfill (Courtney Ridge), owned by Republic Services, is located in Kansas City, Missouri and is the other regional MSW landfill in the Kansas City Metropolitan area. WCA Waste Corporation

² Landfill disposal composition provided by Waste Management to JCDHE, 2018.

³ Solid waste disposal quantities provided by Waste Management to JCDHE, 2018.

(WCA) utilizes a local transfer station to transport waste to their Central Missouri Landfill located in Sedalia, Missouri.

C&D Landfills. Although C&D is accepted at the Johnson County Landfill, as described above, there are also three active, permitted C&D landfills in Johnson County. These facilities include the Hamm Olathe C&D Landfill (purchased from APAC in 2018), APAC-Stanley C&D Landfill, and Asphalt Sales Company C&D Landfill. The Lone Elm C&D Landfill stopped accepting waste on September 30, 2015 but was purchased by Hamm Industries in 2018 (but is not currently accepting waste). The effects of the closure have resulted in the Olathe Transfer Station receiving additional C&D tonnage and truck traffic. Approximately 24,000 tons of C&D material is accepted at the Olathe Transfer Station and then transferred to the Johnson County landfill, mixed with MSW. Table 4-3 provides information regarding annual tonnage, remaining life, and tipping fees for the C&D landfills located within the County. C&D quantities for Johnson County Landfill are included on Table 4-2.

Table 4-3: C&D Landfill Overview⁴

Facility	Annual Tonnage					Estimated Remaining Life ⁵	Tipping Fee
	2014	2015	2016	2017	2018		
Hamm Olathe C&D Landfill	100,233	54,813	67,487	0	56,169	0 ⁶	Pickup truck - \$180 Trailer 10' or less w/ 4" sideboards- \$250 Trailer 16' or less w/ 4" sideboards- \$270
APAC-Stanley C&D Landfill	104,476	104,661	105,138	141,542	127,441	8	Pickup truck - \$70 + \$5/ton Single axle trailer - \$250 + \$1/ton Double axle trailer - \$300 + \$1/ton
Lone Elm C&D Landfill	85,656	46,818	0	0	0	n/a	n/a
Asphalt Sales Company Landfill	106,862	88,490	146,011	97,642	89,435	7	Pickup truck - \$180 + \$1/ton Single axle trailer - \$250 + \$1/ton Double axle trailer - \$300 + \$1/ton

4.1.2 Material Recovery Facilities (MRF)

Table 4-4 identifies the local MRFs in Johnson County and the surrounding areas. Some facilities operate in a manner typical of large MRFs, using a combination of large processing equipment and manual labor to sort and process recyclable materials, and accept the typical range of materials seen in most single-stream recycling programs while other facilities focus on specific materials such as paper and cardboard. Generally, they accept material from both commercial and municipal collection and hauling operations, from residential and commercial sources.

Most recyclable materials generated in Johnson County are processed at the largest MRF in the metropolitan area, Waste Management Recycle America Facility in Kansas City, Kansas. In 2018, Waste Management processed 87,627 tons of recyclables at this facility. It currently has the capacity to process 120,000 tons annually.⁷

⁴ Data provided by KDHE Solid Waste Database Tonnage Reports, 2018, facilities, and City of Olathe Long-Term Solid Waste Master Plan, 2018.

⁵ Data obtained by permit holders.

⁶ Current cell anticipated to reach capacity in Fall 2019. Hamm is currently in the process of permitting and designing another cell with a 2-3 year capacity.

⁷ Data provided by Waste Management, 2019.



Source: Bridging the Gap, 2019. Hamm MRF, Lawrence, Kansas.

Table 4-4: Local Materials Recovery Facilities (MRFs)

Site Name	County	State
Waste Management Recycle America	Johnson	KS
MARCK Industries	Johnson	KS
Hamm Material Recovery Facility	Jefferson	KS
Midwest Shredding	Jackson	MO
Manchester Transfer - WCA	Jackson	MO
Material Recovery and Transfer LLC	Jackson	MO

4.1.3 Transfer Stations

This section provides an overview of transfer stations located within Johnson County, including the role the transfer stations serve in a solid waste management system and a description of the current facilities.

Role of a Transfer Station. MSW, C&D waste, recyclables, and yard waste collection vehicles either haul material directly to a processing facility (landfill, MRF, composting facility, referred to as “direct haul”) or utilize a transfer station, which aggregates material into larger transfer trailers for more efficient

transportation (referred to as “long haul”). The financial feasibility of a transfer station and whether material should be direct-hauled or long-hauled is dependent on a number of factors, including:

- Collection cost
- Disposal cost
- Distance/travel time to landfill
- Fuel costs
- Annual tonnage hauled
- Payload of transfer trailers vs. collection vehicles

Assuming other factors are held constant, the further the landfill or processing facility is from the collection point, the more financially feasible long-hauling with a transfer station is compared to direct hauling. While disposal pricing may change in the future between facilities, utilizing a transfer station or multiple transfer stations provides flexibility for which disposal and processing facilities to use and for the overall finances of the solid waste management system.

City of Olathe Transfer Station. The City of Olathe owns a transfer station which is utilized by their city-operated residential and commercial solid waste collection department as well as external clients such as private haulers, residents, and businesses. The transfer station accepts MSW (including bulky items) and C&D materials. Although the majority of the waste accepted at the transfer station internally is MSW, it is estimated that 60 percent of the waste accepted externally is C&D waste.⁸

Waste accepted at the transfer station is consolidated and is transported to a landfill. Currently, the City of Olathe has contracted with Waste Management for the operation of the transfer station, hauling of the waste, and disposal at the Johnson County Landfill. The current tipping fee at the transfer station is \$55 per ton with a minimum of \$40 per load for Olathe residents. The City of Olathe’s contract with Waste Management includes a transport and disposal fee of \$27.60 per ton.

⁸ City of Olathe Long-Term Solid Waste Master Plan, 2018.

Table 4-5: Quantity of Solid Waste Accepted at the Olathe Transfer Station (Tons)⁹

Year	City of Olathe Collection			Public	Total
	Residential	Commercial	Roll-Off/Other		
2014	37,408	14,140	4,375	18,066	73,989
2015	38,611	14,938	4,944	23,285	81,778
2016	38,067	15,230	5,771	29,616	88,684
2017	39,227	15,641	6,944	29,551	91,364
2018	40,496	17,443	8,583	39,557	106,080

As currently operated, the transfer station has the capacity to accept up to 114,000 tons of waste per year.¹⁰ Based on waste projections conducted as a part of the City of Olathe's Long-Term Solid Waste Master Plan, it is anticipated that an expansion of the transfer station will occur in 2025-2026.

City of Lenexa Transfer Station. The City of Lenexa operates a transfer station that accepts only waste during bulky item events twice a year. Solid waste quantities accepted are approximately 150-200 tons per year.¹¹

4.1.4 Organics Processing Facilities

There are three primary facilities that accept and process organic waste from Johnson County. The Johnson County Landfill and the City of Olathe each have a facility for composting and mulching of yard waste. Residents can also take yard waste to Suburban Lawn and Garden in Kansas City, Missouri. Missouri Organic Recycling (located in Kansas City, Missouri) accepts food waste from the County. Johnson County Community College and Signature Landscaping also have permitted composting facilities through KDHE for small quantities of material.

The City of Olathe composting facility does not accept yard waste from commercial businesses as of 2015 due to capacity constraints. In recent years, over 20,000 tons per year of yard waste materials have been accepted. A recent proposed expansion includes the construction of three new pads, providing an additional 13.4 acres of capacity. At full development, this expansion would provide for 128,000 cubic yards of capacity for composting. Processed mulch and compost is available for City of Olathe departments and residents.¹¹

⁹ Data provided by City of Olathe to JCDHE.

¹⁰ City of Olathe Long-Term Solid Waste Master Plan, 2018.

¹¹ KDHE Solid Waste Database Tonnage Reports, 2014-2018.

Missouri Organic Recycling is the only regional facility permitted to accept and compost food waste. They currently compost over 15,000 tons of food waste each year, collected from commercial entities, along with yard waste provided by the City of Kansas City, Missouri, residential drop-off locations, and other suppliers. Missouri Organic Recycling produces approximately 40,000 cubic yards per year of basic and enhanced compost at its Liberty, Missouri compost facility. Approximately 400,000 cubic yards of wood material is ground, colored, and sold as mulch per year.¹²

4.1.5 Household Hazardous Waste (HHW) Facilities

There are two HHW facilities in Johnson County which accept household hazardous waste materials: the County owned and operated Phillip J. Wittek Household Hazardous Materials Collection Facility and a facility owned and operated by the City of Olathe. The County HHW Facility was established to manage hazardous wastes from residents, conditionally exempt small quantity generators (CESQG), and Kansas Small Quantity Generators (KSQG). Appointments are required for drop off of HHW material at no charge to residents and through a fee-based system for CESQGs. Drop offs at the City of Olathe facility are by appointment at no cost to residents; the facility only accepts material from residents. Quantities of materials collected and managed at these facilities are shown on Table 4-6.

Table 4-6: County and Olathe HHW Facility Collection Quantities (Pounds)¹

Year	Johnson County Facility ²	Olathe Facility
2013-2014		663,486
2014-2015	632,042	791,117
2015-2016	674,575	953,460
2016-2017	697,657	942,830
2017-2018	717,425	867,474

1 These quantities do not include light bulbs and tires, which are not quantified by weight but reported to KDHE by units.

2 Quantities of HHW materials collected at the Johnson County Facility for 2013-2014 were not available.

4.2 Current System Findings

Landfill options and capacity. There are limited landfills within the region and, presently, Johnson County is heavily dependent on the Johnson County Landfill. The Johnson County Landfill has approximately 20 years of remaining disposal capacity at the current disposal rates and it is not anticipated that this capacity would expand beyond the current permitted extents. Considering the extensive timeline required for the siting, planning, permitting, and construction of a new landfill facility,

¹² Quantities provided by Missouri Organic Recycling, 2019.

decision making regarding future disposal options for Johnson County should be finalized in the next 10 years. A new landfill facility could be developed by private developers, a public entity or group of public entities, or through a public-private partnership. Alternatively, the development of transfer stations would provide flexibility for the County to consider disposal options located further away.

Recycling processing options. The commercial MRFs within the region have the processing equipment and capacity to meet the County's current and future recycling processing needs for residential projections. Similar to the landfill discussion above, utilizing transfer stations provides flexibility for the County to have the option to utilize any of these MRFs in the future. As the commercial recycling quantities increase, there may be the need for expansion of existing regional MRFs or the addition of new regional MRFs.

Transfer station planning. As described above, the use of transfer stations would provide flexibility for the County to consider disposal or processing options located further away if limitations occur with local disposal capacity. Transfer station planning, design, and construction takes significantly less capital investment and has a shorter timeline than the development of a landfill.

For example, the City of Olathe has previously utilized disposal facilities located as far as Lawrence, Kansas through the consolidation of waste at their transfer station. The City of Olathe anticipates an expansion of its transfer station to occur by 2025 due to the increasing population and waste generation in the City. As Johnson County considers landfill options over the next 10 years, there could be an enhanced need for one or more additional transfer stations in the County.

Organics processing options. While there is sufficient capacity for yard waste composting in Johnson County, there is currently no permitted facility in Johnson County to compost food waste. Missouri Organic Recycling has additional capacity available, but not such that could support a large-scale food waste diversion program (such as residential collection) by the County. If the County desires to pursue a large-scale food waste diversion program, developing partnerships with other private operations (such as but not limited to Missouri Organic and Waste Management) or the City of Olathe would enhance the feasibility of such programs being successful.

HHW options. The County owned and operated Phillip J. Wittek Household Hazardous Materials Collection Facility currently provides significant limitations due to the size and location of the facility at the Nelson wastewater treatment plant. JCDHE has requested funding to build a new HHW facility and should begin siting, planning, and design in 2020. Alternatively, the County could partner with a

municipality within the County to provide HHW management services and support a single facility for use county-wide.

4.3 Public-Private Partnership Options

The County will need to rely on a combination of facilities going forward to meet needs for landfilling trash and processing recyclables and organics. This section describes various public-private partnerships that the County can consider and recommends specific partnership options for landfills, transfer stations, MRFs and organics processing facilities.

Public-private partnerships can be an effective model to provide needed infrastructure without the full financial risk falling on either the local government or the private business. Effective public-private partnerships exist when both local governments and the private industry collaborate to share resources, capital investment, risk, and revenue. When considering a public-private partnership, a local government should consider the degree to which it wants to be involved in the operations and capital investment of a facility.

There are advantages and disadvantages to the different types of arrangements and which entity takes ownership of the land, capital investment, and operations. While the processing or disposal services agreement is the most common, public-private partnerships are gaining more appeal as a means to share risk given recent market volatility. Table 4-7 provides an overview of the different public-private partnership options available to local governments and private businesses.

Table 4-7: Examples of Public-private Partnership Options for Processing/Disposal

Responsibility	County-Owned and Operated	County-Owned with Private Operations*	Privately Owned and Operated on County Land*	Processing/Disposal Services Agreement
Land Ownership	County	County	County	Private
Capital Investment	County	County	Private	Private
Operations	County	Private	Private	Private

*True public-private partnership arrangement

There are multiple examples of the various types of public-private partnerships in Johnson County. All of the landfills and MRFs are owned and operated by private companies and utilize agreements with cities or other haulers. At the other end of the spectrum, the County and City of Olathe have publicly owned and operated HHW facilities. The City of Olathe transfer station is an example of a facility owned by the city,

with private operations. The City of Olathe currently utilizes a public-private partnership for the operation of their transfer station. The City owns the transfer station and contracts out the operation and associated hauling and disposal of the material accepted to a private company, currently Waste Management. The contract also allows for the City to self-operate the transfer station if desired. This allows for significant flexibility in meeting the City's disposal needs as well as staffing and financial resources. This model could be replicated if the County were to develop additional transfer stations.

Going forward, as disposal capacity decreases and Johnson County continues to increase diversion within the residential and commercial sectors, there may be a need for additional facilities. Looking toward more collaborative, public-private partnership-based approaches may provide a viable solution toward meeting the long-term facility needs for the County as a whole. The following section describes an innovative public-private partnership that was implemented by the City of Dallas to provide additional recycling processing for the City, as well as many other municipalities in the region.

4.4 Case Studies

Public-Private Partnerships in North Texas Help Build Regional Recycling Infrastructure. The city of Dallas recognized the broader financial challenges associated with the recycling industry and pursued an innovative public-private partnership approach with a goal of increasing financial returns and recycling quantities for residents and businesses in Dallas and surrounding communities. This effort was intended to support the city's Solid Waste Management Plan¹³, passed in 2011 and updated in 2013 that intends to increase diversion to 90 percent by 2040. The strategy for developing the public-private partnership was based on the city's Resource Recovery Planning and Implementation Study¹⁴.

The city of Dallas partnered with a private company in 2015 to design, build, and operate a new MRF to process recyclable materials from the city and other surrounding communities. This MRF is located on 15 acres at the McCommas Bluff Landfill (city-owned land), which provides an opportunity to become a broader resource recovery park with increased investment in materials management infrastructure. The newly built MRF can process



¹³ *City of Dallas Local Solid Waste Management Plan 2011-2060*. HDR Engineering, Inc., in association with CP&Y, Inc. and Risa Weinberger & Associates, Inc. Updated 2013.

¹⁴ *Consulting Services in Support of Resource Recovery Planning and Implementation*. Leidos and Burns & McDonnell. 2014.

approximately 120,000 tons of recyclable materials per year and started accepting recyclable materials from Dallas and other surrounding communities in January 2017.

The city of Dallas had historically been involved with traditional processing agreements with private recycling companies that had favorable financial terms for the city. Issues with this traditional contractual agreement became evident in 2012, when recycling markets crashed and commodity prices dropped. The city realized the nature of processing agreements was changing, and when their contract for recycling processing services was up, the city knew it would have to take an innovative approach to provide greater financial stability given fluctuating markets. The city of Dallas entered into a 15-year agreement (public-private partnership) with a private recycling company, where the company covered the initial capital cost of the new MRF, and the city provided the land for the MRF to be built, which was land that would have otherwise been used for the landfill. The city pays a processing fee of \$70.54 per ton to the MRF and has a 50/50 revenue share on the net revenues after the sale of recyclable materials. Since the MRF is built and operated on city-owned land, the private company will pay a “host fee” of \$15 per ton to the city for material that is generated by non-city sources, as well as an additional public education fee of \$1 per ton. Given that the recycling materials sold can change in value and that a portion of the financial agreement is based on the value of the material, when commodity values are low, the revenue net of processing fees could be negative for the city. However, because of this innovative public-private partnership and risk sharing agreement, the MRF operator agreed that the city of Dallas will never have to pay for recycling processing services, regardless of market conditions.



The city of Dallas provides weekly recycling curbside collection in 48-gallon, 64-gallon, or 96-gallon carts and as of 2013, the city had more than 237,000 single-family residential sanitation accounts. Materials collected for recycling include mixed paper, cardboard and paperboard, milk and juice cartons, aluminum, tin and steel cans, glass bottles and jars, and PET #1, HDPE #2, #3-5 and #7 plastic containers. The city operates its recycling collection program through a solid

waste fee collected from its residents with city solid waste accounts.

The development of the new MRF provides an opportunity for surrounding areas to establish or expand their curbside recycling programs. The MRF is currently sourcing recyclable materials from Dallas and

other cities in the region, potentially filling a gap for more rural or remote communities that have struggled with the transition from providing drop off only services to rolling out a curbside recycling program. This public-private partnership may serve as an example for other large metropolitan areas in Texas who are struggling with the financial realities of recycling given challenging market conditions.

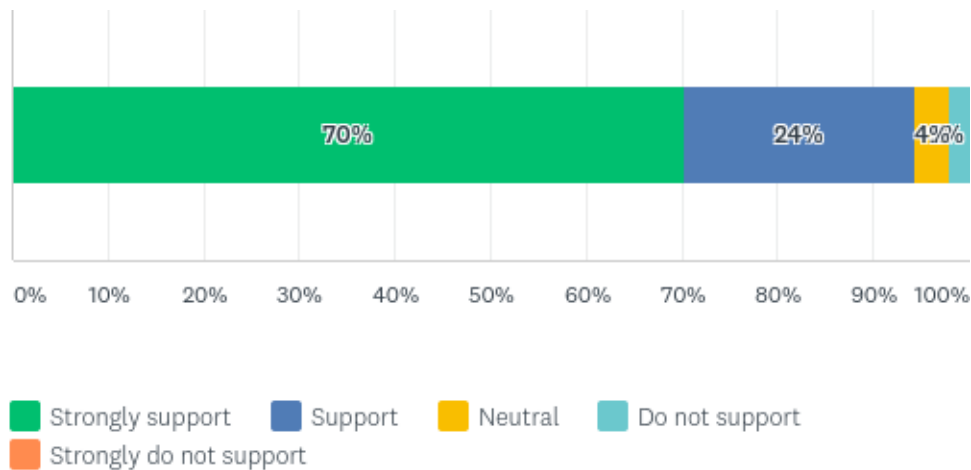
4.5 Evaluation of Options

Please see Appendix E for a menu of options which were evaluated for facilities.

4.6 Stakeholder Engagement

Details pertaining to the overall Stakeholder Engagement associated with this Plan are included in Section 1.7 and full results in Appendix C. As a part of the survey conducted on-line and distributed at the public meeting, the following feedback pertaining to facilities were received:

1. Infrastructure for recycling and disposal is limited in capacity. To what extent do you support the County in taking a more active role in evaluating infrastructure and development of facilities, public and private (food waste composting, recycling, future landfills)?



4.7 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to the facilities.

Recommendation #1: Design and construct a new HHW building and/or portable drop-off options.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Develop conceptual plan for new HHW building or expansion to an existing facility, and optional portable drop-off locations.	1	n/a	Medium	Medium	Years 1-2	JCDHE, Consultant
Site, design, and construct new HHW building or expansion to an existing facility.	1	Medium	High	High	Years 2-3	JCDHE, Consultant

While HHW quantities are relatively small (1 percent), the environmental impact of diversion of these materials is very high. **Additional discussion on the potential location, operation, and funding options for a new HHW facility or expansion of existing facility is in Section 10.6.**

Recommendation #2: Evaluate infrastructure needs for organics management.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Continue to monitor capacity of existing organics processing facilities.	2	n/a	Low	Low	Years 1-5	JCDHE
Closely track quantities of organic materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for large scale food waste composting.	2	Medium	Medium	Low	Years 3-5	JCDHE, Private Industry

It is recommended that JCDHE request annual tonnage reports from organics processing facilities. Utilizing data collected from residential and commercial haulers, regular composition studies as recommended in Section 5.6, and requested facility data, JCDHE will monitor the quantities of organic materials (yard waste and food waste) generated within the county and the capacity of existing organics processing infrastructure. As there is not currently a facility permitting in Johnson County to process food waste, it is important to monitor the capacity of Missouri Organic Recycling to understand the need for development of infrastructure in Johnson County.

Recommendation #3: Continue to evaluate long-term municipal solid waste infrastructure needs.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Continue to monitor remaining life in Johnson County Landfill.	2	n/a	Low	Low	Years 1-5	JCDHE
Conduct a feasibility study on the siting and development of a new landfill and/or transfer station(s) via a public private partnership.	2	n/a	Medium	Medium	Years 2-5	JCDHE, Consultant

It is recommended that JCDHE request annual tonnage reports from Johnson County Landfill. The remaining life of the Johnson County Landfill is a significant concern for the regional solid waste management system. At this time, there is no known proposed landfills to be developed in Johnson County to replace the capacity needed. JCDHE will continue to closely monitor capacity of Johnson County Landfill and conduct a feasibility study to determine the applicability, schedule, cost, potential structures of the siting, design and construction of a new landfill or transfer stations to allow the consolidation and transportation of waste to other regional facilities.

Recommendation #4: Evaluate infrastructure needs for disposal and recycling of construction & demolition waste.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Continue to monitor remaining capacity of existing C&D landfills.	4	n/a	Low	Low	Years 1-5	JCDHE
Encourage private development of a regional C&D MRF.	4	Medium	Low	Low	Years 3-5	JCDHE, Private Industry

It is recommended that JCDHE request annual tonnage reports from C&D landfill facilities. Although C&D landfills are less difficult than MSW landfills to site, permit, design, and construct, they still require significant planning and capital.

Although end markets for recycled C&D materials have been identified in Johnson County, it is not feasible to separate most materials at the C&D landfill. The labor required for separation is cost prohibitive and many of the materials originally in good condition are damaged during transportation. JCDHE recently visited a privately-owned regional C&D MRF located in St. Louis, Missouri (case study located in Section 8.3) and will continue to track their operation and utilization within that area. Using this information, JCDHE will encourage similar development of a similar facility in the Kansas City Metropolitan Area or other private organizations which can provide source separation and diversion of C&D materials.

Recommendation #5: Evaluate infrastructure needs for recycling processing facilities.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Continue to monitor capacity of existing MRFs.	4	n/a	Low	Low	Years 1-5	JCDHE
Closely track quantities of recycled materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for recycling processing.	4	Medium	Medium	Low	Years 1-5	JCDHE, Private Industry

It is recommended that JCDHE request annual tonnage reports from MRFs. Utilizing data collected from residential and commercial haulers and requested facility data, JCDHE will monitor the quantities of recyclable materials generated within the county and the capacity of existing MRFs. Although regional MRFs are currently able to provide capacity for processing recyclables generated in Johnson County, the quantity of recyclables has the potential to increase drastically due to commercial universal provision of services. It may be necessary for expansion of regional MRFs or development of new MRFs to meet this need.

5.0 SINGLE FAMILY RESIDENTIAL

5.1 Current System Review

Single-family residential services are provided to households defined as single-family, which includes single-family (1-unit) homes or structures with four or fewer housing units. Of the County's approximately 224,200 occupied households, an estimated 173,100 are single-family households receiving residential services. This equates to approximately 472,500 of the County's total 578,800 residents.¹

Residential solid waste collection services include curbside collection of refuse, single-stream recyclables, yard waste, and bulky waste. In Johnson County, these residential solid waste services are primarily provided by private haulers, contracted through a city, a homeowner's association (HOA), or an individual household. The City of Olathe, the second most populous city in the County, is the only city that has a municipal collection operation.

This section provides an overview of the current residential collection system in Johnson County, addressing similarities and variations of service provision among cities (contracting, services provided, service cost to residents, etc.), residentially disposed material flow within the County (from cities, to haulers, to landfills), and material quantities. Much of the data presented was obtained by Burns & McDonnell through a series of requests for information (RFIs) sent to each individual city.

Service provision and costs. As mentioned above, all of Johnson County's single-family residents receive collection services through private haulers except for citizens of Olathe. About half of cities have chosen to provide residential services through city-wide contracts with private haulers. Most other cities have chosen not to enter contracts with private haulers. In these cities, residents receive services through hauler contracts with their HOA or through contracting directly with a service provider. One city, Bonner Springs, provides services through an interlocal agreement with Wyandotte County.

The monthly cost for residential collection services varies widely. In general, the cost to residents in which the city or HOA contracts with the hauler(s) is lower than individual residents contracting directly with haulers. Based on data and input provided by individual cities, the monthly cost per household for city- or HOA-contracted services generally ranges from \$14.95 to \$18.50 per month.² For residents

¹ Based on the assumption of 2.7 persons per single-family household, as described in Section 3.1.1.2.

² The City of Edgerton is an exception. The total monthly cost per household for residential services in Edgerton is \$15.00. Per City resolution, the City funds 50 percent of the cost (\$7.50 per month) and residents incur 50 percent of the cost (\$7.50 per month).

contracting individually with haulers, monthly costs range from approximately \$25.00-\$35.00 per month.

Table 5-1 summarizes each city's method of residential service provision and monthly cost to residents.

Table 5-1: Current Single-family Household Recycling Quantities

City	Contracting Party	Monthly Cost to Residents
Bonner Springs	Interlocal agreement with Wyandotte County	\$14.95
De Soto	City	\$18.50
Edgerton	City	\$7.50
Fairway ¹	City	\$15.17
Gardner	Residents	Varies
Lake Quivira ²	City	No rate
Leawood	HOAs	Varies
Lenexa	HOAs, residents	Varies
Merriam	HOAs, residents	Varies
Mission Hills ²	City	No rate
Mission	City	\$16.36
Mission Woods ²	City	No rate
Olathe	N/A; Municipal services	\$19.64
Overland Park	HOAs, residents	Varies
Prairie Village	City	\$16.00
Roeland Park ¹	City	\$15.17
Shawnee	HOAs, residents	Varies
Spring Hill	City	\$16.64
Westwood Hills ³	HOAs	\$14.42
Westwood ¹	City	\$15.17

¹ The Cities of Fairway, Roeland Park, and Westwood cooperatively engaged the MARC/Kansas City Regional Purchasing Cooperative to prepare and issue a bid for residential solid waste services. The bid was awarded to WCA.

² Residential services in cities with no monthly residential rate are funded through residential property taxes or other city funding sources.

³ The monthly cost to residents reflects the monthly rate paid to the hauler (WCA) by the HOA of Westwood Hills.

Based on a survey for this SWMP, 18 of the 20 cities expressed an interest in future collaboration for contracting efforts for residential services for potential to secure more favorable contract terms with haulers. Of the 11 cities with city-wide residential service contracts, eight have contract terms ending in the next four years.

Core residential services. Core residential services refers to curbside collection of refuse, single-stream recyclables, yard waste, and bulky waste. Based on information provided in city responses to RFIs and additional available information, all core services are provided in some manner to residents in all cities. Due to the numerous cities and HOAs contracting for services and that services are provided by multiple residential haulers across the County, service frequencies vary widely among cities. A few cities provided details such as city-wide requirements for single-stream recycling, yard waste, or bulky waste collection opportunities provided by the city in addition to those provided through regular hauler contracts.

Material flow. The flow of residential MSW through the County, from cities to haulers to landfills and recycling facilities is complex. Based on city RFI responses, there are 9 residential solid waste haulers operating within the County (including private haulers and the City of Olathe), providing services to the County's 20 cities. Twelve cities are serviced by a single hauler, whereas others are serviced by multiple haulers. For example, there are up to eight different haulers operating in the City of Gardner. The residential haulers operating within the County are listed below.

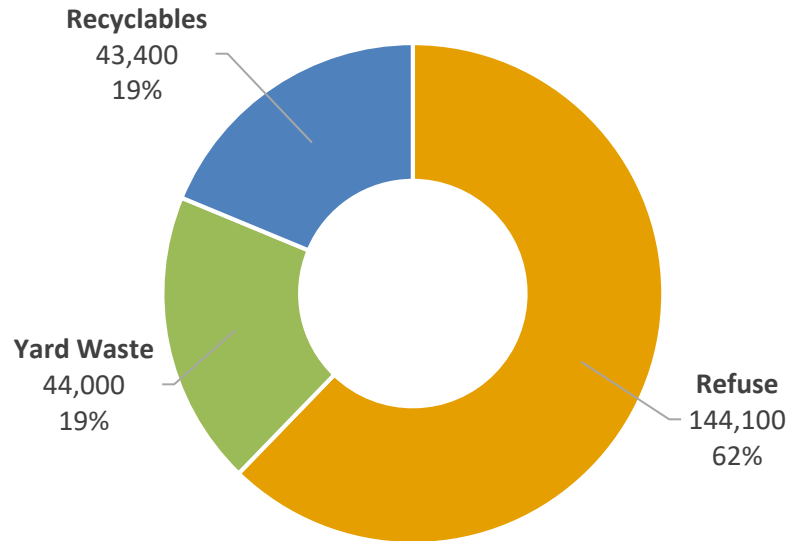
- Bumpy Roads Disposal
- City of Olathe
- Gardner Disposal Service
- Honey Creek Disposal Service
- KC Disposal
- Ottawa Sanitation Services
- Republic Services
- Waste Management
- WCA

Haulers transport curbside collected residential refuse to one of four landfills in the region. The majority of residential refuse is disposed at the Johnson County Landfill (Waste Management). Other landfills utilized by haulers are Hamm Landfill (Honey Creek Disposal Service), Courtney Ridge Landfill (Republic Services), and Central Missouri Landfill (WCA). Single-stream recyclable materials are processed at regional MRFs owned by Waste Management, Hamm Industries, WCA, and Republic. The City of Olathe and Johnson County Landfill composting operations are the primary facilities utilized for yard waste recycling, and Missouri Organic Recycling receives small quantities of material from the County.

Recycling insight. The single-family residential sector produces approximately 24 percent of the County's total solid waste generation, or 232,500 tons of material per year. Figure 5-1 provides the quantity and percentages of single-family residential MSW by type. HHW and e-waste were also minor

quantities (less than one percent each) of residential MSW generation but are too small to be reflected in Figure 5-1.³

Figure 5-1: Single-Family Residential MSW Overview



¹ Additionally, approximately 900 tons of HHW and e-waste was also generated by the residential sector.

Yard waste, single-stream recyclables, HHW, and e-waste contribute to the single-family sector's overall recycling rate. This section focuses on yard waste and single-stream recycling because these materials comprise over 99 percent of all materials recycled by single-family generators. The County's overall single-family recycling rate is 38.0 percent, including 18.9 percent contributed by yard waste and 18.7 percent contributed by single-stream recyclables.⁴

The number of pounds of material collected per capita and/or per household is often used as a performance metric for recycling programs. Table 5-2 presents the County's current annual recycling quantities on a per capita and per household basis, by material type for the single-family sector.

³ Total generation for HHW and e-waste for 2017 is estimated at 134 and 145 tons, respectively.

⁴ The remaining small percentage is contributed by HHW and e-waste.

Table 5-2: Current Single-Family per Capita and per Household Recycling Quantities

Recyclable Material	Annual Pounds per Capita	Annual Pounds per Household
Single-stream recyclables	182	502
Yard waste	184	509
Total recycling	366	1,011

¹ An additional approximately three pounds of material per household is recycled through HHW and e-waste programs.

Based on a 2016 study conducted by The Recycling Partnership, surveying 465 cities across the country, the national average for the amount of single-stream recyclables collected curbside is 357 pounds per household per year.⁵ The statewide average for Kansas is below the national average, at 239 pounds per household per year, though statewide averages vary widely. With an average of 502 pounds of single-stream recyclables recovered per household per year, Johnson County's current residential recycling programs are effective and comparable to the top performing cities and states.

Since 2012, JCDHE has implemented a regulation banning disposal of yard waste at landfills and requiring yard waste materials to be recycled through composting, mulching, or other means. This regulation has prompted significant increases in yard waste recycling, and the County's recycling contribution from yard waste has surpassed the contribution from single-stream recyclables. Cities with well-established yard waste recycling programs typically see as much as 10-20 percent of their residential MSW recycling quantities achieved through yard waste recycling. Based on this data, the County's current yard waste recycling rate is strong, at 18.9 percent of total single-family generation, and 509 pounds per household per year.

Single-stream recycling participation. Many municipalities are increasingly utilizing recycling participation rates as an alternative performance metric for recycling program effectiveness. Participation rate is defined as the proportion of customers that choose to utilize a service or program, rather than relying on material quantities or percentages generated. In 2018, JCDHE conducted a limited survey of household participation in curbside single-stream recycling services in areas of 12 of Johnson County's cities. Participation rates for individual cities ranged from 52 percent to 95 percent, with nine of the 12 cities reaching 80 percent or greater. The overall average participation rate was 83 percent. While these results do not reflect the entirety of Johnson County, they provide another perspective of the County's residential recycling program performance.

⁵ The Recycling Partnership. January 31, 2017. "The 2016 State of Curbside Report." Available online: <https://recyclingpartnership.org/state-of-curbside-report/>

Drop-off recycling activities. In addition to curbside collection services provided to residents, there are several community drop-off centers for single-stream recyclables, yard waste, and glass. Single-stream drop-off centers include Johnson County Landfill, Overland Park, and four locations in Olathe. Yard waste drop-off centers include Johnson County Landfill, City of Olathe Composting Facility, Missouri Organics Recycling, and Suburban Lawn and Garden.⁶ Ripple Glass has collection recycling bins located all over the Metro area – frequently in shopping center and grocery store parking lots. On average, they collect and recycle approximately 5,000 tons of glass material per year from recycling bins in Johnson County.

5.2 Review of 2013 Solid Waste Management Plan Recommendations

The following sections provide a review of the recommendations made in the 2013 SWMP and the implementation efforts that have been taken by JCDHE directly and through others in Johnson County over the last five years.

5.2.1 Recommendation #1: Promote Source Reduction of Residential Solid Waste

- Provide public information, educational programs, and presentations to explain and promote source reduction measures.
- Partner with regional reuse outlets to develop educational and promotional material.
- Investigate potential drop-off collection sites for reusable products.
- Continue to seek out reuse opportunities for products and material collected at the County's HHW site.

⁶ Source: Johnson County, Kansas website, available at <https://www.jocogov.org/dept/health-and-environment/environment/recycling/yard-waste-and-composting>

Implementation of**Recommendation #1.** JCDHE

continues to promote source reduction of residential waste through presentations to municipalities, community groups, and residents within Johnson County. Beginning in April 2015, JCDHE began hosting regular meetings with municipalities to discuss issues of waste reduction, recycling, and composting. Over the last



five years, JCDHE staff have given presentations at the following events:

- Shawnee Mission East Earth Fair
- Johnson County Wellness Fair
- Senior Fest
- Bayer Safety Fair
- Overland Park Safety Fair
- Shawnee Mission/Prairie Village Earth Fair
- Eriksson Earth Fair
- Overland Park Safety Fair
- Core 4 Career Fair
- OP Recycling Extravaganza
- Senior Fest
- Healthy Yards Expo
- Love Your Neighborhood (Overland Park)
- Overland Park Speakers Series- Trash and Recycling
- Bentwood Elementary Career Fair
- SWANA Conference
- Live Well Age Well event
- Core4Career Fair
- Shawnee City Quest event
- Pollinator Prairie event

Through these events, *Trashology 101: Waste Reduction Curriculum for Grades 3-5*, and other presentations to community groups, JCDHE staff have been able to directly engage over 12,000 residents regarding waste reduction strategies.

Relevancy to 2019 Plan. Participation in community events will remain a key strategy for JCDHE staff to distribute information to Johnson County residents.

5.2.2 Recommendation #2: Increase Recycling in the Residential Sector

- Continue to educate residents on benefits of recycling.
- Work with local recyclers and end users of recycled materials to create web-based PSAs.
- Work with collection and processing facilities to identify educational needs.
- Promote recycling of products not collected curbside but collected at drop-off sites such as retail stores that accept plastic film and bags for recycling.
- Work with cities to promote city-owned drop-off sites to accept materials not collected at curbside.
- Work with recycling/processors on ways to expand the materials accepted at the curbside.

Implementation of Recommendation #2. JCDHE promotes source reduction and an increase in recycling in the residential sector through maintenance of the County's educational website, targeted marketing campaigns, and social media marketing. Through these outlets, JCDHE provides educational information to the public regarding recycling drop-off locations, licensed haulers, and guidance on allowable items for placement in recycling bins.

In the last five years, JCDHE has implemented many targeted marketing campaigns. Most significantly, JCDHE led a unified recycling campaign with numerous cities aimed at reducing contamination. Based on a 2018 field survey, JCDHE staff identified plastic bags, films and bagging recyclables as the most significant form of contamination in residential recycling bins and focused the unified recycling campaign on educating residents on proper recycling techniques for plastic bags and films as well as placement of recyclables in residential collection bins.

In October 2018, Bridging the Gap (BTG) and JCDHE conducted a characterization study of material received at the Waste Management MRF, which accepts material from Johnson County customers. Results of the study showed a contamination rate of 26.5 percent, with the two primary contaminants being bagged recycling (10.3 percent) and contaminated paper (6.7 percent). The study also indicated

that public education efforts targeting reducing bagged recycling and increasing proper recycling of glass, plastic film, and textiles could decrease the contamination rate to 13.3 percent, if successful.

Each year JCDHE partners with the County’s Public Works Stormwater Management Program in the spring and fall on a campaign designed around reducing yard waste and proper methods to manage leaves. JCDHE produced four videos starring a fictional talk show host, Greta Green, to relay recycling information. JCDHE also recently started using Facebook Live to reach residents with live streaming videos.

Table 5-3 identifies public impressions through social media. Note that the decrease in Facebook impressions in 2017-2018 is due to changes to Facebook’s algorithm, which results in a reduction in earned impressions from content publishers like the JCDHE.

Table 5-3: JCDHE Public Impressions through Social Media

Fiscal Year	Facebook Impressions	Twitter
2014-2015	480,000	180,000
2015-2016	479,000	293,000
2016-2017	597,000	305,000
2017-2018	200,000	250,000
Total	1,756,000	1,028,000

Other marketing efforts include the publishing of articles in the Johnson County Magazine and the Best Times magazine, on several topics including recycling, the County’s green business program, recycling during the holidays, and the HHW facility and paint sale program. An advertisement was also included in a 2018 issue of the Johnson County magazine highlighting JCDHE’s green business program and Certified Partners.

Relevancy to 2019 Plan. Efforts in communication to residents through social media and targeted marketing campaigns based on solid waste management system needs will continue as before as well as additionally prescribed in the updated recommendations.

5.3 Case Studies

North Central Texas Develops Regional Recycling Campaign. Recognizing the challenges associated with implementing successful single-stream recycling educational programs across a large geographic area, the North Central Texas Council of Governments (NCTCOG) recently developed a regional

recycling survey and campaign. While the North Central Texas region (which includes 16 counties in the Dallas-Fort Worth area) is larger than Johnson County, the NCTCOG project serves as an example of how cities and a regional coordinating entity (like Johnson County and/or MARC) can collaborate to develop a recycling campaign. The objective of this project was to better understand the quantity and quality of materials in communities' recycling systems, and to develop a regional public educational campaign focused on increasing recycling participation and decreasing contamination. To develop an informed campaign, the project started with an in-depth evaluation of the quantities and composition of the residential solid waste and recycling streams. Table 5-4 presents the types of analyses and findings from the project.

Table 5-4: NCTCOG Regional Recycling Survey and Education Campaign

Analysis	Findings
<ul style="list-style-type: none"> • Composition analysis of recycling and landfill material from 10 cities • Interviews with all MRFs in the region • Acceptable and problematic materials MRF mapping • Multiple workshops and focus groups 	<ul style="list-style-type: none"> • Capture rates • Prioritization of problematic and preferred materials • Economic value of material recycled and landfilled • Strategies to develop a regional campaign

NCTCOG launched the campaign in May 2019. NCTCOG created a harmonized collaborative awareness campaign. The region will lead the charge in the first phase (May - August 2019) with paid social, digital, and print ads. Concurrently, local programs can follow the same guidance documents to use the grab-and-go and customizable messaging assets to amplify the messages. Other regions and communities are welcome to utilize the campaign material developed for NCTCOG. Further information is available at: <https://www.nctcog.org/envir/materials-management/regional-recycling-survey-and-campaign>



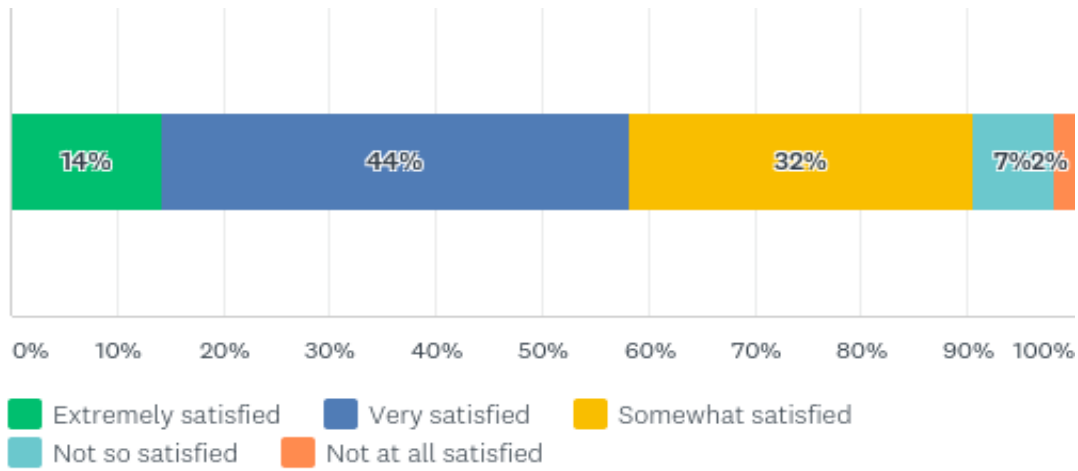
5.4 Evaluation of Options

Please see attachment E for a menu of options which were evaluated for the single-family residential sector.

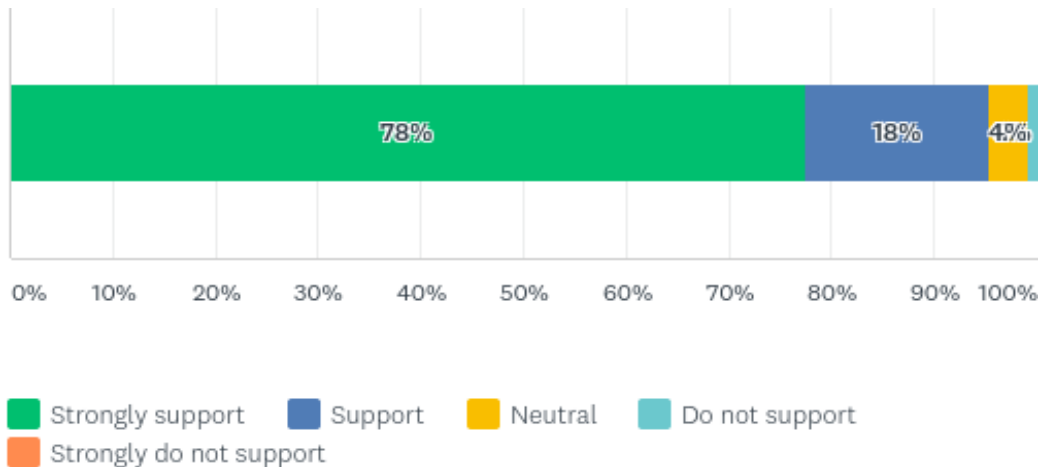
5.5 Stakeholder Engagement

Details pertaining to the overall Stakeholder Engagement associated with this Plan are included in Section 1.7 and full results in Attachment C. As a part of the survey conducted on-line and distributed at the public meeting, the following feedback pertaining to single-family residential solid waste services were received:

1. How satisfied are you with your household's current trash, recycling, and yard waste collection service?



2. Do you support Johnson County's continued effort in education and public outreach toward recycling and trash reduction?



5.6 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to the residential sector.

Recommendation #1: Increase diversion and reduce contamination.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Continue participation, composition, and contamination studies to track effectiveness of educational outreach.	2	n/a	Medium	Low	Years 1-5	JCDHE
Perform an analysis of the quantity and quality of materials in the County's recycling systems and develop a County-wide public educational campaign focused on increasing recycling participation and decreasing contamination.	2	Medium	High	Medium	Years 2-3	JCDHE, Consultant

Johnson County has made significant progress in increasing diversion in the single-family residential sector due to educational outreach, and regulations pertaining to yard waste and universal provision of services for residential haulers. As recycling markets continue to change and recycling processors emphasize the importance of quality of materials collected, JCDHE is adjusting its focus to decrease contamination. The regular conducting of participation, composition, and contamination studies can aid in developing targeted campaigns and tracking effectiveness of recent efforts. It is recommended to perform each of these studies every other year. To establish a baseline, it is recommended to conduct a thorough analysis of the quality and quantity of materials and educational campaign, as discussed in the case study presented in Section 5.3

Recommendation #2: Provide technical assistance for refuse and recycling cart size selection.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Advise residents on cart size selection through public education and requests.	5	Medium	Low	Low	Years 1-5	JCDHE, Cities, Private Industry

JCDHE will continue to provide technical support to residents regarding the implementation of pay-as-you-throw and selecting the appropriate size cart for refuse and recycling. JCDHE will encourage municipalities and private haulers to provide additional support, as requested by residents.

Recommendation #3: Continue standardization of services and encourage cooperative contracting.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Develop standard list of acceptable recyclable materials for collection in coordination with processing facilities and MARC.	5	Low	Low	Low	Years 1-3	JCDHE, MARC, Private Industry
Develop standard contract to be made available to HOA's, cities, etc. for hauling, processing, and disposal.	5	Low	Medium	Medium	Years 3-5	JCDHE, Consultant

An understanding of the accepted materials at the local MRFs is critical to the success of an educational program surrounding decreasing contamination. The MARC has developed a standard list of acceptable materials that may need to be revised based on the specific facilities utilized by Johnson County.

The County's licensing and universal provision of services for residential collection services has provided single-family residents with consistency in their refuse, recycling, and yard waste collection services. However, there is still a variety of costs associated with these services depending on how they are contracted, whether individually or through an HOA, municipality, or inter-local agreements between municipalities. A standard contract would encourage collaborative contracting and help to decrease the large variance in pricing currently prevalent.

6.0 MULTIFAMILY RESIDENTIAL

6.1 Current System Review

In general, materials collected from the multifamily residential sector are reported by JCDHE within the commercial sector, as shown in Section 7.0. Haulers who service multifamily residential facilities are currently not required to be licensed per the 2010 update of the Johnson County Code of Regulations for Solid Waste Management. Recycling in multifamily residential facilities is limited, but some multifamily complexes utilize community bins in common areas. Some newly renovated or built multifamily residential complexes, such as Inner Urban Lofts in downtown Overland Park, are including recycling in their resident amenities.

One city in Johnson County has adopted an ordinance for multifamily recycling. The City of Lenexa required that by January 1, 2015, licensed refuse haulers providing solid waste collection service to multifamily complexes in the city must provide, as a part of their basic service charge, collection of an unlimited volume of recyclables.

6.2 Review of 2013 Solid Waste Management Plan Recommendations

The following sections provide a review of the recommendations made in the 2013 SWMP and the implementation efforts that have been taken by JCDHE directly and through others in Johnson County over the last five years.

6.2.1 Recommendation #1: Increase Recycling in the Multifamily Residential Sector

- Identify multifamily complexes currently providing recycling options to tenants
- Work with the private sector and with property owners and managers to identify and remove barriers to expanding recycling opportunities
- Work with cities to identify and eliminate barriers
- Continue to offer free consultation to multifamily complexes to improve recycling, composting and waste reduction efforts

Implementation of Recommendation #1. JCDHE provided educational training to apartment complexes within the City of Lenexa that were subject to the city ordinance requiring multifamily recycling. JCDHE also met with representatives of the City of Roeland Park and the city's only multifamily housing complex to develop a plan to increase participation in recycling on-site. JCDHE worked with the City of

Lenexa to gather lessons learned from the implementation of mandatory multifamily recycling by city ordinance to support additional municipalities in similar efforts.

Relevancy to 2019 Plan. As JCDHE does not have the authority to regulate the apartment complexes located within municipalities, JCDHE has supported individual municipalities in their efforts to this point. JCDHE will continue to act as a technical resource for municipalities and multifamily residential complexes as they implement recycling programs, especially as a part of the commercial universal provision of services, described in Section 7.6.

6.2.2 Recommendation #2: Evaluate success of those multifamily recycling programs in cities which have mandated them. Identify multifamily complexes currently providing recycling options to tenants.

- Gather lessons learned from Lenexa's implementation of mandatory multifamily recycling ordinance
- Work with the city of Lenexa to survey multifamily property owners, managers, and tenants to identify recycling concerns and constraints and encourage other cities to follow Lenexa's lead

Implementation of Recommendation #1. Implementation of Recommendation #1 is also applicable for Recommendation #2.

Relevancy to 2019 Plan. Relevancy to 2019 Plan of Recommendation #1 is also applicable for Recommendation #2.

6.3 Case Studies

City of Chicago Incentivizes Multifamily Complexes with Rebate. The City of Chicago, Illinois offers a rebate to multi-family complexes, which includes any complex with five or more dwelling units. The City provides a rebate to offset the total cost of refuse and recycling collection service up to \$75.00 per residential unit annually. In order to receive the rebate, the complex must establish a recycling program that includes two of the following materials: cardboard; mixed paper; magazines and catalogs; newspaper; aluminum and steel cans; glass containers; plastic containers; fluorescent bulbs; or high-density discharge lamps. In addition, the recycling program must either include an additional material from the above list or develop two source reduction programs for the complex. Source reduction measures that would satisfy the requirement include, but are not limited to, the following:

- Composting of yard waste;

- Use of a mulching lawn mower;
- Installing energy efficient light bulbs or fixtures;
- Installing reusable furnace and air conditioning filters;
- Providing residents with reusable cloth or string bags; and
- Providing residents with educational materials on non-toxic or less wasteful products, such as rechargeable batteries or citrus cleaning products.

In order for the multi-family complex to receive the rebate, the complex must submit the following items to the City: a notarized statement showing the annual cost for recycling collection, the number of residential units in the complex, and a letter confirming the executed agreement with the private hauler providing waste collection. After review, City staff may approve the rebate to the complex.

Boulder Requires Haulers to Provide Recycling and Maintain Records. Haulers in Boulder, Colorado are required to provide recycling services to all multi-family complexes. The collection of recyclable materials is provided no less frequently than every other week. Containers for recycling are provided by the hauler for collection. The City of Boulder enforces this ordinance by requiring the haulers to maintain records that include the weight in tons of garbage, recyclable materials, and compostable materials that are collected from each complex. These records are to be made available for audit by the City Manager. Those found in violation of the ordinance are subject to a fine.

See additional Case Study for Commercial Universal Provision of Services for the Commercial Sector, including Multifamily Residential, in Section 7.3.

6.4 Evaluation of Options

Please see Appendix E for a menu of options which were evaluated for the multifamily residential sector.

6.5 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to the multifamily residential sector.

Recommendation #1: Support cities and private developers in planning and troubleshooting recycling in multifamily residential complexes.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Develop guidance document and distribute to cities with example ordinance language for multifamily residential development pertaining to providing convenient recycling, necessary container sizing, and appropriate enclosures for recycling infrastructure.	Medium	Medium	Medium	Medium	Years 3-5	JCDHE, Consultant
Provide technical support to multifamily residential complexes through the green business program, particularly as the universal provision of services is implemented.	Medium	Medium	Low	Low	Years 3-5	JCDHE, Cities, Private Industry

JCDHE will develop a guidance document for municipalities providing example ordinance language for multifamily residential complexes including provisions for convenience recycling locations, necessary container sizing, and appropriate enclosures for recycling containers. These provisions are often not considered in the initial development of the facility and provide limitations on recycling programs. After the guidance document is prepared, continued coordination between municipalities and the County will be critical for encouraging implementation. JCDHE will also assist multifamily complexes in implementing diversion programs through the green business program, particularly those who are affected by the commercial universal provision of services.

Since multifamily residential facilities are serviced by commercial haulers in Johnson County, Recommendation #1 in Section 7.6 regarding universal provision of services will apply.

7.0 COMMERCIAL

7.1 Current System Review

Johnson County's commercial entities contract trash and recycling collection services through private haulers. Examples of these commercial entities include wholesale, retail, offices, schools, hospitals, and industrial facilities. The City of Olathe provides commercial collection services to commercial entities in Olathe, but only on a contracted basis and in competition with local private haulers.

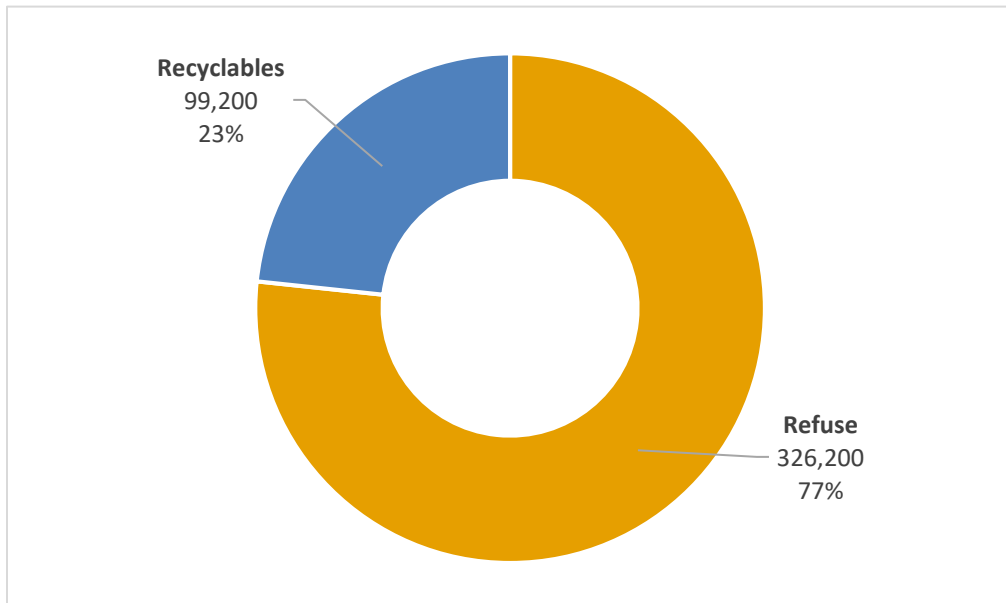
Costs and services for trash and recycling collection vary by service provider (hauler). Yard waste from commercial properties is typically generated by a landscaping contractor who is responsible for the material transport and processing at a compost facility. Other organics (food waste) generated from commercial entities is selectively contracted for collection and processing by Missouri Organics Recycling.

Cost of Service. Costs of services vary by the size of container and frequency of pickup. Many smaller retailers utilize two to eight-cubic yard dumpster, which can cost \$75-150 per month for weekly services.¹ These dumpsters can be serviced by a front-loading packer truck. Larger retailers may utilize larger roll-off containers or compactors.

Commercial MSW Generation. The commercial sector produces approximately 45 percent of the County's total solid waste generation, or 427,500 tons of material per year. An estimated 13-14 percent of commercially-generated MSW was generated by multifamily households,² indicating that there may be significant opportunity for increased recycling through efforts focused on the multifamily sector. Figure 7-1 provides the quantity and percentages of commercial MSW by type.

¹ Waste Management and Republic quotes, online 2019.

² This estimate was developed by applying the single-family per-capita generation to the current total estimated multifamily population.

Figure 7-1: Commercial MSW Overview

1 Additionally, approximately 2,000 tons of food waste was generated and diverted by the commercial sector.

Recycling insight. The County’s overall commercial recycling rate is 23.2 percent through recycling of single-stream recyclable materials. In addition, 2,000 pounds of food waste, less than 0.5 percent of total commercial generation, was reported as diverted through Missouri Organics Recycling. The commercial recycling rate does not include any yard waste materials that may have been diverted by commercial entities of private landscapers (refer to Section 3.3.2 for commercial generation methodology).

7.2 Review of 2013 Solid Waste Management Plan Recommendations

The following sections provide a review of the recommendations made in the 2013 SWMP and the implementation efforts that have been taken by JCDHE directly and through others in Johnson County over the last five years.

7.2.1 Recommendation #1: Promote Source Reduction of Commercial Sector Solid Waste

- Provide public information, educational programs, and presentations to explain and promote source reduction measures
- Work with regional reuse outlets to develop educational and promotional material
- Investigate potential drop-off collection sites for reusable products
- Work with regional initiatives such as the Midwest Materials Exchange

Implementation of Recommendation #1. JCDHE has focused their efforts in source reduction and increasing diversion in the commercial sector through their green business program, providing waste consulting and monetary support (\$500) for recycling and/or composting infrastructure.

In 2016, JCDHE revamped the existing green business program to the R5 Certification program. R5 specifically focuses on waste diversion from source reduction to the most responsible disposal methods. R5 (Reinvest, Rethink, Reduce, Reuse, Recycle) is modeled from the US Zero Waste Business Council, whose goal is to work with businesses to keep material out of the landfill and incinerators.

JCDHE has gained key partnerships with large organizations such as various chambers, the Downtown Overland Park Partnership (DOPP), and local school districts. Table 7-1 provides a listing of the recently awarded partners who have participated in the green business program.

Table 7-1: Certified Green Partners

<u>2016</u>	<u>2017</u>
<ul style="list-style-type: none"> • Downtown Overland Park Partnership (DOPP) • Go Green Granite • Johnson County Community College • The Land Source • Lifted Logic • MARCK Recycling • Ten Thousand Villages 	<ul style="list-style-type: none"> • SealGreen ReUse Concrete Sealing • Tradewind Energy, Inc. • Unity Church of Overland Park • Vestcom • New Century • WaterOne • Craig Sole Designs, Inc. • Freightview, LLC • Hair Lovin' • InterUrban ArtHouse • L'Arche Green Express • nexus IT group, Inc. • Unique Finds Gifts • The Upper Crust Pie Bakery • Shawnee Mission East High School • Shawnee Mission North High School • Shawnee Mission South High School • Shawnee Mission West High School • Indian Hills Middle School • Indian Woods Middle School • Westridge Middle School • Apache Innovation School • Belinder Elementary School • Bluejacket-Flint Elementary School • Briarwood Elementary School • Brookridge Elementary School • Brookwood Elementary School • Christa McAuliffe Elementary School

	<ul style="list-style-type: none"> • Comanche Elementary School • Corinth Elementary School • Crestview Elementary School • Highlands Elementary School • John Diemer Elementary School • Mill Creek Elementary School • Nieman Elementary School • Oak Park-Carpenter Elementary School • Overland Park Elementary School • Pawnee Elementary School • Prairie Elementary School • Ray Marsh Elementary School • Rhein Benninghoven Elementary School • Rising Star Elementary School • Rosehill Elementary School • Sunflower Elementary School • Tomahawk Elementary School • Trailwood Elementary School • Westwood View Elementary School • Mission Trail Elementary School • Timber Creek Elementary School
<u>2018</u>	<u>2019</u>
<ul style="list-style-type: none"> • City of Shawnee- City Hall • CommandApp • Corbion • Grantham University • Growing Futures Early Education Center • InterUrban Lofts • InTouch Solutions • Rise Against Hunger • University of Kansas-Edwards campus • Wiener Kitchen • Horizons High School • Shawnee Mission Northwest High School • Hocker Grove Middle School • Trailridge Middle School • Broken Arrow Elementary School • East Antioch Elementary School • Merriam Park Elementary School • Roesland Elementary School • Rushton Elementary School • Santa Fe Trail Elementary School • Swananoë Elementary School • Arrowhead Day School • Shawnee Mission Early Childhood Education Center 	<ul style="list-style-type: none"> • Atmos Energy • Bijin salon and spa • Integrative Health Providers, Finan Chiropractic & Lifestyle Massage • Kindred • Rimann Liquors • Training Umbrella • Village Cooperative of Shawnee • Lenexa Hills Elementary • Gurdwara Nanak Darbar Sahib Temple (Honorable Mention)

<ul style="list-style-type: none"> • Shawnee Mission School District Center for Academic Achievement • Shawnee Mission School District Broadmoor Administrative Center • Shawnee Mission School District Operations & Maintenance Center 	
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JCDHE worked with area school districts (Shawnee Mission School District, Olathe School District, and Blue Valley School District) and individual other schools to provide technical and financial assistance in implementing comprehensive school waste diversion programs. At the Shawnee Mission School District, the cafeteria diversion rate is 70-91 percent after the installation of recycling and composting infrastructure and an associated education program.

Additionally, JCDHE was awarded a grant from KDHE in the spring of 2018 to assist with placing recycle bins in Shawnee Mission School District's two athletic stadiums. The grant funding provided 19 outdoor recycling bins while the district matched the grant with a single recycling and 20 matching outdoor trash cans. Installation was complete in time to collect plastic water bottles at graduation ceremonies.

In 2016, JCDHE partnered with L'Arche, a non-profit supporting adults with intellectual and developmentally disabilities. One of their programs "The Green Express" provides collection of recyclables from buildings associated with commercial entities. This eliminates the need for additional recycling dumpsters to an organization, provides an inexpensive tax-deductible donation rather than paying a private hauler, and supports a non-profit that shares a mission of increasing recycling.

Relevancy to 2019 Plan. JCDHE will continue to provide technical and monetary support to organizations to promote source reduction and increase diversion, with a focus on organizations which will be affected by the proposed universal provision of services for the commercial sector.

7.2.2 Recommendation #2: Increase Recycling in the Commercial Sector

- Work with solid waste haulers and city officials to identify barriers to improve recycling infrastructure
- Work with solid waste haulers and city officials to understand how barriers differ for small, medium, and large size commercial establishments
- In conjunction with city officials, survey property owners and managers to identify recycling needs, concerns, and constraints

- Facilitate coordination among establishments and management companies and city officials to decrease barriers
- Investigate ways to collect recyclable materials from commercial establishments without sufficient space for recycling containers
- Review current city planning and zoning codes to determine space and screening requirements
- Work with cities to eliminate zoning/regulatory barriers to commercial recycling
- Develop a template code that could be adopted by cities to create flexibility or eliminate code requirements that discourage recycling
- Work with the private sector and with property owners and managers to identify ways that participation can be increased where recycling options exist
- Continue to offer free consultation to businesses, schools, and churches to improve waste reduction efforts
- Create an online waste evaluation form for businesses to perform self-evaluation and reporting
- Work with commercial establishments to initiate or improve on-the-job recycling where commercial recycling exists
- Elevate the value of the Solid Waste Management Committee's Green Business recognition program to help increase commercial establishment participation in the program
- Continue providing portable recycling containers for use at public events
- Encourage economic development strategies that include recycling plans or green initiatives requirements as part of financial incentives packages
- Investigate the potential of an eco-park in the County to expand end markets for recovered materials

Implementation of Recommendation #2. Implementation of Recommendation #1 is also applicable for Recommendation #2.

Relevancy to 2019 Plan. Relevancy to 2019 Plan of Recommendation #1 is also applicable for Recommendation #2.

7.2.3 Recommendation #3: Support City Incentive Programs and Codes that Mandate or Encourage Commercial Sector Recycling, Reuse, and Reduction

- Work with the cities to consider requiring new commercial buildings provide space for recycling
- Work with cities to consider requiring specific recycling of materials based on their generation at commercial locations

Implementation of Recommendation #3. JCDHE performed a comprehensive review of all city solid waste screening codes, developed model ordinance language to best accommodate recycling collection, containers, and presented the model language at a meeting of Johnson County cities in April 2015.

Relevancy to 2019 Plan. The structure of this review process is similar to other 2019 recommendations for the County to influence municipalities in the management of C&D waste and waste generated by the multi-family residential sector. Screening recommendations will be included in upcoming efforts to increase recycling in commercial and multi-family residential facilities.

7.3 Case Studies

Table 7-2 presents the policy tools, program funding utilized, and potential lessons learned from commercial waste diversion programs implemented in a variety of other communities. Detailed case studies from these communities are included as Attachment F.

Table 7-3: Commercial Waste Diversion Case Studies Summary

Background			Policy Tools								Program Funding				Potential Lessons Learned	
City	Population ²	Commercial Diversion Rate	Targeted Outreach and Assistance	Program Standards via Ordinances	Mandatory Recycling	Complaint Driven Enforcement	Hauler Licensing	Non-Exclusive Franchise	Exclusive Franchise	Material Disposal Bans	Licensing Fees	Franchise Fees	Hauler Recycling Fee (AB939)	Tonnage Surcharges	Generator Fees	
Austin	913,000	NA	√	◆	√	√	√			√	√				√	Responsibility for compliance needs to be shared with haulers; One program size does not fit all generator types.
Los Angeles	3,930,000	70%	√	√	√	√	√		◆ ⁴	√	√	√				Lengthy lead time needed; Requires large staffing resources commitment to outreach and enforcement.
Miami	430,000	NA		√	√	√	√	◆			√	√				Provides a framework for generating program revenues and gathering applicable hauler data. Hauler gross receipts and per account fees can be levied to fund program.
Portland	620,000	65%	√	√	√	√	◆			√	√		√			Disposal economics impact diversion success - high tip fees; Generators should share in the responsibility for compliance.
San Jose	1,016,000	78% ¹	√	√	√	√	√		◆ ³	√	√	√				Multiple year planning process needed; Fair and independent RFP process provides higher likelihood of success.

◆ = Primary Policy Tool Focus

NA – Not available

¹ Estimated commercial recycling rate of 47% without organics diversion.

² U.S. Census Bureau, 2014.

³ One city-wide exclusive hauler.

⁴ Multiple City-defined zones with one exclusive hauler per zone.

Key findings include the following:

- Select communities are considering and, in some instances, implementing alternative commercial collection programs with various strategies and combinations of strategies to increase commercial waste diversion including, but not limited to the following:
 - Outreach and assistance to generators
 - Mandatory recycling
 - Program standards via ordinances and rules
 - Complaint driven enforcement
 - Hauler licensing
 - Franchising (e.g. exclusive and non-exclusive)
 - Material disposal bans
- Commercial diversion, including recycling rates, are likely to increase with the allocation of additional resources to support the implementation of new policy and program options.
- Typically, program funding for commercial diversion varies from community to community but may include the following:
 - Licensing fees
 - Hauler franchise and recycling fees
 - Disposal tonnage surcharges
 - Generator fees
- Communities typically levy licensing fees and a second fee mechanism to generate program revenues for commercial diversion programs.

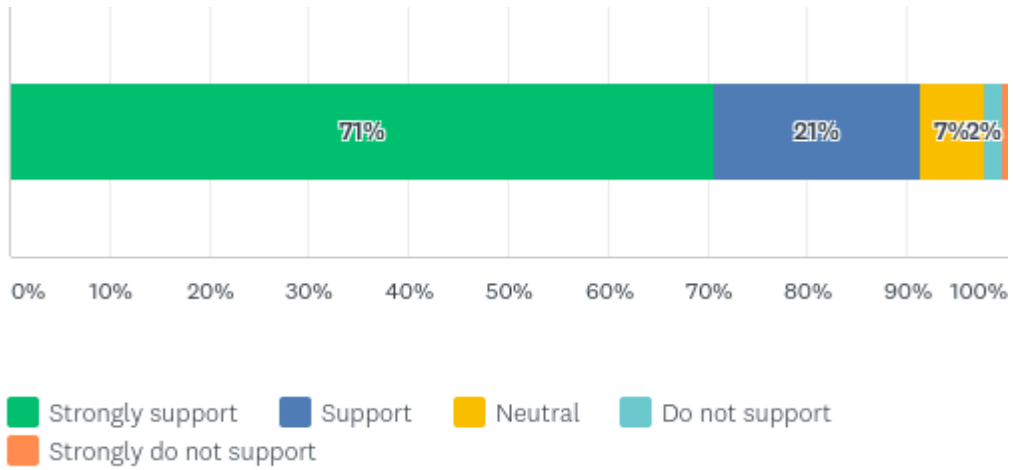
7.4 Evaluation of Options

Please see Appendix E for a menu of options which were evaluated for the commercial sector.

7.5 Stakeholder Engagement

Details pertaining to the overall Stakeholder Engagement associated with this Plan are included in Section 1.7 and full results in Appendix C. As a part of the survey conducted on-line and distributed at the public meeting, the following feedback pertaining to commercial solid waste services were received:

1. Johnson County has significantly increased the residential recycling rate through regulations (licensing of residential haulers to include recycling and yard waste services). To what extent do you support a similar strategy to increase recycling rate in the commercial sector?



7.6 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to the commercial sector.

Recommendation #1: Promote consistency and oversight over the commercial haulers operating in Johnson County.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Develop implementation plan, ordinance, and phasing plan for universal provision of services for commercial haulers.	1	n/a	Medium	Medium	Year 1	JCDHE, Consultant
Conduct stakeholder engagement and public education pertaining to changes in the commercial solid waste management collection system.	1	n/a	Medium	Low	Years 1-5	JCDHE, Consultant
Implement ordinance that requires haulers to become licensed through County and report the amount of refuse, recyclables, and/or organics collected on an annual basis.	1	n/a	High	Low	Years 3-4	JCDHE
Implement ordinance that requires haulers to provide recycling and/or organics along with refuse collection services for their customers.	1	High	High	Low	Years 3-4	JCDHE

JCDHE has seen significant increases in participation of recycling and the overall diversion rate on the residential side since their 2010 regulatory update requiring universal provision of services and licensing of haulers. Licensing of residential haulers has also provided JCDHE comprehensive data sets to track these increases. It is recommended that the proposed regulation utilize a phasing plan, similar to the what is shown in the Austin case study in Appendix F. This would affect larger retailers and other commercial entities first, many of which already have recycling programs in place. Stakeholder engagement, particularly with the haulers and the commercial sector, will be critical for the creation and successful implementation of an ordinance to provide universal provision of services. It is anticipated that 1-2 years of stakeholder engagement prior to implementation would be needed, as well as during implementation.

It is not anticipated that organics be included in the ordinance based on the lack of infrastructure this time; however, this can be modified prior to implementation if infrastructure is developed.

Recommendation #2: Continue the green business program, focused on supporting the phasing in of the commercial universal provision of services.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Target green business program partners associated with the phasing plan developed for the universal provision of services - larger commercial entities to small businesses.	3	High	Medium	Low	Years 1-5	JCDHE, Business Partners

As many additional commercial organizations are provided the opportunity to recycle, it will be important for JCDHE to support them in the implementation of a recycling program including the planning of necessary infrastructure and employee education. Based on the phasing plan shown in the Austin case study in Appendix F, larger commercial entities would be the first affected by the regulatory changes and requiring JCDHE support through the green business program. Many of them may already have recycling programs which, particularly with improvement through JCDHE technical guidance, could be used as examples for smaller retailers or commercial entities.

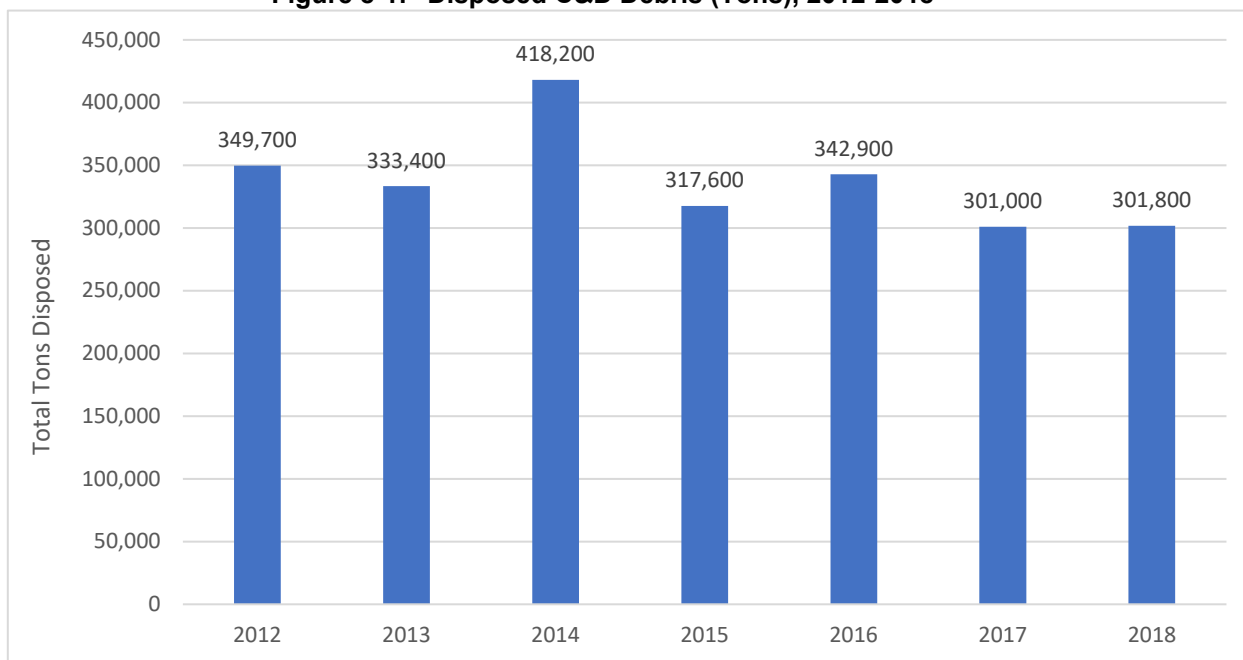
8.0 CONSTRUCTION AND DEMOLITION

8.1 Current System Review

Construction and demolition (C&D) debris is a large component of the County's overall solid waste stream and is typically handled separately from municipal solid waste (MSW). C&D debris is generated from residential, commercial, and public sector projects, and is defined as solid waste resulting from the construction, remodeling, repair, and demolition of structures, roads, sidewalks, and utilities. It includes, but is not limited to, materials such as brick, roofing materials, wood, flooring, drywall, non-asbestos insulation, concrete, and asphalt.¹

Current Generation and Disposal. In 2018, approximately 302,000 tons of C&D debris generated in Johnson County were disposed of within the County. In prior years, total C&D quantities generated and disposed by the County have varied but have regularly been greater than 300,000 tons each year between 2012-2018.² Figure 8-1 shows the variation in C&D disposal quantities from 2012 through 2018.

Figure 8-1: Disposed C&D Debris (Tons), 2012-2018



Source: KDHE Online Facility Database, Quarterly Disposal Reports; City of Olathe Transfer Station C&D tonnage.

¹ Kansas Department of Health and Environment Bureau of Waste Management. Kansas Statutes Annotated and Administrative Regulations. Revised April, 2015. Solid Waste Management http://www.kdheks.gov/waste/regsstatutes/sw_laws.pdf

² Due to the variations in annual quantities of C&D material disposed, the average quantity of material disposed per year for years 2015-2017 was used to estimate current per-employee disposal for waste projection purposes (Section 3.6).

Four landfills, APAC-Stanley, Hamm Olathe C&D Landfill (purchased from APAC in 2018), Asphalt Sales Company, and the Johnson County Landfill receive Johnson County's disposed C&D debris. The Hamm Olathe, APAC-Stanley, and Asphalt Sales Company landfills are permitted as C&D landfills. The Johnson County Landfill is an MSW landfill but is also permitted to accept C&D debris. C&D debris is not typically collected or hauled with MSW. When a project generates C&D debris, the material is generally hauled directly to a C&D or MSW landfill by the generator or is collected by a contracted hauler and transported to a C&D or MSW landfill for disposal.

The Lone Elm C&D Landfill stopped accepting waste on September 30, 2015 but was purchased by Hamm Industries in 2018. The effects of the closure have provided Olathe Transfer Station with additional tonnage of C&D waste and truck traffic. In 2018, approximately 23,700 tons of C&D material was accepted at the Olathe Transfer Station and transferred to the Johnson County landfill mixed with MSW.

The County is monitoring large development and demolition projects including the effect of generation of construction waste from activity around the BNSF Intermodal facility near Edgerton, Kansas and wastes from demolition and remediation of the former Sunflower Army Ammunition Plant near De Soto, KS for potential effects to the solid waste system in Johnson County.

C&D Recycling and Recovery. Disposed C&D debris (presented in Figure 8-1) represents the majority of C&D debris generated by the County. Smaller quantities of C&D debris are recycled or reused but is challenging to quantify. The potential for increased C&D recycling presents an opportunity to increase the County's landfill diversion rate.

The largest driver of C&D recycling currently occurring in the County is through sustainable building program efforts led by contractors and building owners (e.g. Leadership in Energy and Environmental Design (LEED) certified). C&D landfills may also crush limited quantities of building materials to be reused onsite, but these quantities are unknown. Higher proportions of asphalt debris from road and bridge construction may be recycled because it is typically a less mixed or contaminated waste stream than other C&D debris. Road asphalt debris may be milled, crushed and re-melted for use in new asphalt. It is estimated that over 90 percent of Johnson County's clean road asphalt is recovered and recycled.

Old Castle Materials, parent company to APAC, opened a mulch bagging operation at the APAC-Stanley C&D Landfill in early 2017. The feedstock for the mulch is chipped wood from wood pallets and land clearing activities in area. Due to permit restrictions put in place by the City of Overland Park, the mulch bagging operation relocated to Paola, KS.

Small quantities of C&D debris are diverted through reuse programs, such as the Kansas City Habitat for Humanity ReStore. During the past two years, Habitat ReStore has sold an average of approximately 214 tons of donated residential building material for reuse, diverting that material from landfill disposal.

8.2 Review of 2013 Solid Waste Management Plan Recommendations

The following sections provide a review of the recommendations made in the 2013 SWMP and the implementation efforts that have been taken by JCDHE directly and through others in Johnson County over the last five years.

8.2.1 Recommendation #1: Promote Source Reduction of Renovation, Construction and Demolition Materials

- Provide public information and education programs to explain and promote source reduction measures
- Work with regional reuse outlets to develop educational & promotional material
- Work with cities to provide education and reuse options to contractors at the point of planning and/or permitting
- Provide expansion or siting assistance to non-profit and/or private reuse outlets
- Incorporate incentives into the building permit process to encourage renovation, construction, and demolition contractors to practice deconstruction and utilize reuse outlets

Implementation of Recommendation #1. In 2015-2016, JCDHE began exploring the possibility of collecting reusable, quality C&D waste at the Olathe Transfer Station in partnership with Habitat ReStore. In 2016-2017, Johnson County staff participated in a grant funded peer exchange with colleagues from St. Peters, MO, Columbia, MO, Springfield, MO, Lawrence, KS, Fayetteville, AR and a representative of APAC. The group traveled to St. Louis and toured, evaluated, and discussed the operation and feasibility of a C&D MRF and a large-scale composting site that included biosolid composting.

Relevancy to 2019 Plan. With the current configuration of the Olathe Transfer Station, it was determined to be unfeasible for separation of C&D waste for the use of Habitat ReStore. This may be reconsidered through the design of the future expansion of the Olathe Transfer Station.

JCDHE will continue to investigate C&D recycling opportunities, promote existing diversion options to generators and the public, promote the private development of potential processing facilities, encourage key connections between generators and processors, and become engaged on the municipal level with the building permit process.

8.2.2 Recommendation #2: Increase Recycling of Renovation, Construction, and Demolition Debris

- Provide public information and education programs to promote area recycling options
- Maintain and distribute a list of regional reuse and recycling options
- Work with County planning department to incorporate educational materials in the annual contractor certification process
- Work with Johnson County Community College to develop appropriate classroom materials for the Architecture and Construction degree program
- Work with haulers and facility managers to identify opportunities to build upon the existing infrastructure
- Work with area facilities to identify and make connection with existing recovered material end use markets
- Work with area facilities to develop end use markets for materials that currently lack recycling options
- Promote LEED (Leadership in Energy and Environmental Design) principle
- Review city of Mission's Green Build program and develop templates, if appropriate, to share with other cities
- Work with interested cities to develop waste management plan requirements—including reduction, reuse, recycling, and disposal—at the planning or permitting process steps
- Encourage all cities to require waste management plans for publicly funded projects

Implementation of Recommendation #2. Implementation of Recommendation #1 is also applicable for Recommendation #2.

Relevancy to 2019 Plan. Relevancy to 2019 Plan of Recommendation #1 is also applicable for Recommendation #2.

8.3 Case Studies

Local Governments Mandate C&D Diversion through Ordinances and Permit Requirements. Some community examples include:

- Portland, Oregon Deconstruction of Buildings Ordinance³ mandates the deconstruction of primary dwelling structures (houses and duplexes) older than 1916 or primary dwelling structures

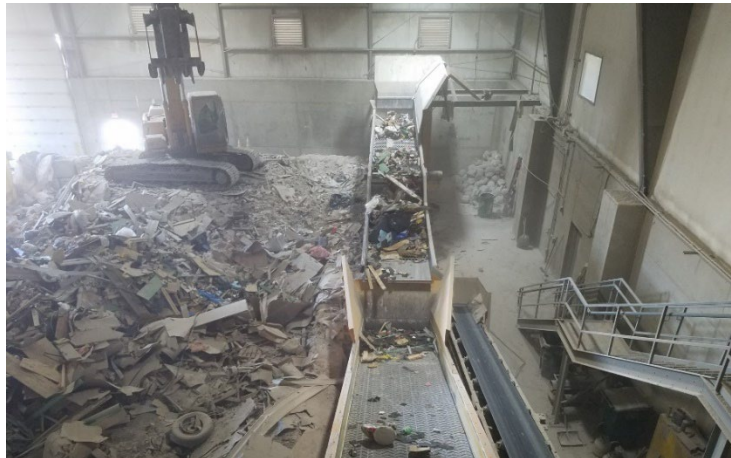
³ <https://www.portlandoregon.gov/citycode/71899>

that have been designated as a historic resource. In addition, Ordinance 17.102.270 requires the general contractor (or property owner) to recycle at least 75 percent of all the solid waste produced on the site for all building projects that exceed \$50,000.

- Cook County, Illinois Demolition Debris and Diversion Ordinance⁴ requires that (except in unusual circumstances) 70 percent of all C&D debris must be diverted from disposal for construction and demolition projects and five percent by weight shall be reused.
- Madison, Wisconsin Construction and Demolition Recycling⁵ requires all new construction projects that use concrete and steel supports must recycle 70 percent of their construction debris by weight. New construction projects that use wood framing and remodeling projects (with values more than \$20,000) must recycle clean wood, clean drywall, shingles, corrugated cardboard, and metal.
- Ramsey County, Minnesota has a pre-demolition inspection program⁶ for all house demolitions and all commercial/industrial major renovations and demolition. Enforcement on the proper recycling or disposal for appliances, asbestos, electronics or any other hazardous waste is part of the pre-inspection process. Ramsey County also has a 4R Program⁷ (reuse, recycle, renovate for reinvestment) for tax forfeiture properties for deconstruction or renovation.

LEDR C&D MRF Opens in St. Louis. Landfill-Environmental-Diversion-Reclamation (LEDR) opened a 35,000 square foot indoor C&D MRF in St. Charles, Missouri. This facility utilizes an automated system, manufactured by Continental Biomass Industries (CBI), Newton, New Hampshire, to separate

material by size. The separated material is then transferred to a 12-station sorting house to be separated further by material type. Material types include wood, concrete, drywall, plastic, metal, cardboard, and aggregate. Many of these material types are shipped to reprocessing facilities after separation. An on-site



⁴ <http://blog.cookcountyil.gov/sustainability/wp-content/uploads/2012/07/Substitute-Demolition-Debris-Diversion-Ordinance-July-23.pdf>

⁵ <https://www.cityofmadison.com/streets/recycling/demolition/constructionDemolition.cfm>

⁶ <https://www.ramseycounty.us/businesses/licenses-permits-inspections/licenses-inspections/pre-demolition-inspections>

⁷ <https://www.ramseycounty.us/residents/property-home/taxes-values/tax-forfeited-land-information/4r-program-reuse-recycle-and-renovate-reinvestment-program>

grinder transforms handpicked wood into a premium-end product for resale. The facility is designed to process more than 50 tons of material in hour, operating eight to 10 hours a day, five to six days per week and is cost comparable to landfilling the C&D material.⁸

8.4 Evaluation of Options

Please see Appendix E for a menu of options which were evaluated for the construction & demolition sector.

8.5 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to the C&D sector.

Recommendation #1: Encourage government incentives and regulations to decrease generation and increase diversion of construction & demolition waste.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Modify County regulations to require recycled material (i.e., crushed concrete) used on all applicable County projects or projects funded by the County (i.e., County Assistance Road System, CARS).	3	Medium	Medium	Low	Years 3-5	Multiple Johnson County Departments
Develop guidance document and distribute to cities with example incentives and ordinance language for building codes and construction projects to include fast track permitting, buy-recycled (first choice) programs, green building and LEED ordinances, and mandatory C&D recycling.	3	High	Medium	Medium	Years 3-5	JCDHE, Consultant

⁸ <https://www.edrecycler.com/article/ledr-cbi-installation-st-charles/>

The County can increase the quantity of recycled C&D material by directing contractors to utilize such materials, especially recycled concrete, on projects which are contracted internally or through County funding. This effort will require coordination with multiple Johnson County departments including public works and purchasing. Due to the limitation of the County to provide building codes and permits for only areas outside of incorporated areas, the ability to increase diversion or use of recyclable materials in residential and commercial construction relies on municipalities ordinances, codes, and permit process. Therefore, JCDHE will develop a guidance document for municipalities providing options for incentives or changes to ordinances and codes and applicable case studies (see case study in Section 8.3). After the guidance document is prepared, continued coordination between municipalities and the County will be critical for encouraging implementation.

Recommendation #2: Continue education and outreach on existing or future diversion options.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Develop targeted marketing campaigns on existing diversion options such as Habitat for Humanity ReStore.	5	Low	Low	Low	Years 4-5	JCDHE
Seek opportunities to market recyclable C&D materials at a regional level.	5	Low	Low	Low	Years 4-5	JCDHE, Private Industry

Promotion of existing reuse options is a relatively low cost, low difficulty of implementation strategy that may increase waste diversion. Useable items that are typically removed and may be reused include unique architectural features, cabinets, doors, windows, hot water radiators, non-asphalt shingles, wood flooring and trim, structural lumber, fixtures, and other appliances. JCDHE should work to facilitate reuse of these and other items to not only reduce disposal, but also to reduce the need for natural resources required to manufacture new items.

9.0 ORGANICS

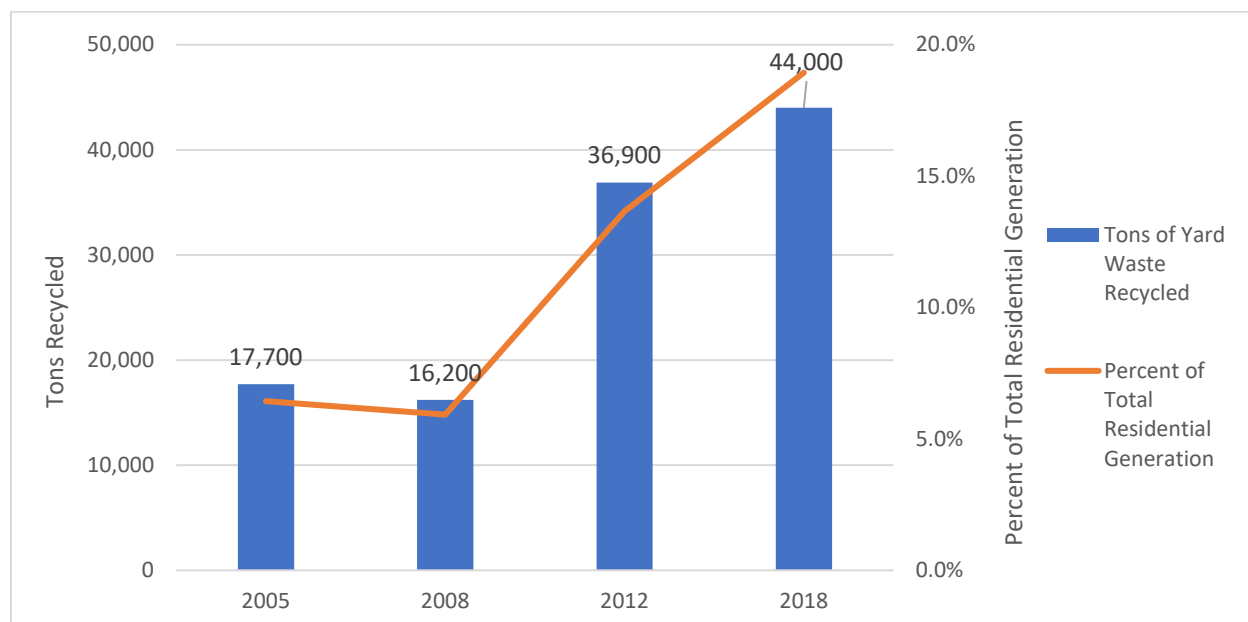
9.1 Current System Review

The organics waste stream includes both yard waste and food waste. Yard waste includes material such as leaves, grass clippings, limbs, brush, and other plant trimmings. Food waste includes fruits and vegetables, meats, eggs and dairy, coffee grounds, and food-soiled paper products such as napkins, pizza boxes and various types of cardboard and paper food containers. Some food waste processing facilities restrict or do not accept certain materials, such as meat and dairy products.

There are three primary facilities that accept and process organic waste from Johnson County. The Johnson County Landfill and the City of Olathe each have a facility for composting and mulching of yard waste. Residents can also take yard waste to Suburban Lawn and Garden in Kansas City, Missouri. Missouri Organic Recycling (located in Kansas City, Missouri) accepts food waste from the County. As discussed in Section 4.0, there are several other permitted organics processing facilities within the County that accept small quantities of material.

Organics regulatory overview. In 2012, JCDHE implemented a regulation prohibiting the co-collection yard waste with other residential waste intended for disposal and prohibiting the disposal of yard waste in any solid waste facility located in Johnson County. There are currently no regulations mandating that food waste be recycled in Johnson County.

Current organics generation, disposal, and recycling. Most of the organics recycling quantities in the County are from residential yard waste. Figure 9-1 shows the County's increase in residential yard waste recycling from 2005-2018, as total recycled tons and as a percentage of total residential MSW generation. Recycled yard waste increased from 6.4 percent of total residential MSW generation in 2005, to 18.9 percent in 2018. This upward trend began in 2012 after implementation of the yard waste disposal ban.

Figure 9-1: Residential Yard Waste Recycling

There is currently limited food waste recycling that occurs in Johnson County. Data is not available for the quantities of residential food waste recycled. Approximately 2,000 tons of food waste is hauled annually from commercial entities in Johnson County to Missouri Organic Recycling for composting.

The 2015 waste characterization study (described in greater detail in Section 3.6) commissioned by JDCHE gives some insight into the proportion of the County's landfill disposal stream that is comprised of organic material. Much of the organic material currently being disposed has the potential to be composted. Yard waste makes up only three percent of both the residential and commercial disposal streams, which is attributable to the 2012 yard waste disposal ban. Food waste makes up a much larger portion of disposed material. Twenty-six percent of all disposed residential material and 20 percent of all disposed commercial material is food waste. This indicates that there is significant potential for increases in the County's food waste recycling rates through both residential and commercial programs and education.



Residential services and programs. Residential solid waste haulers are required to collect yard waste separately from other wastes and transport it to a facility to be recycled through mulching or composting.

There is currently limited food waste recycling in the residential sector. Prairie Village initiated a pilot curbside food waste collection service, but the program was ended due to a lack of hauler interest in expanding the program. This pilot program served 80 homes with approximately 33 percent participation rate. In 2018, a private hauler, Compost Collective, began offering a residential food waste collection service in limited locations within Johnson County. Food waste collection is not included with regular residential services provided by cities and HOAs and residents must contract directly with a service provider if they wish to receive separate food waste collection.

Commercial services and programs. In 2014, JCDHE began supporting schools in the Shawnee Mission school district (SMSD) in implementing food waste and recycling programs on campuses. SMSD's cafeteria composting program began in 2008 as a grassroots effort initiated by students, teachers, administrators, parents, and community partners. During 2017, SMSD diverted over 600,000 pounds of food and paper to compost, a portion of which was returned to schools as compost for school gardens and the Center for Academic Achievement Broadmoor Urban Farm. The district has set a goal of diverting 70 percent of its waste from the landfill.¹ As of 2018, all SMSD schools and the Center for Academic Achievement participate in recycling and cafeteria composting.

JCDHE has expanded this program and is working in partnership with the three largest school districts (Olathe, Blue Valley, and Shawnee Mission) and multiple private schools in the County to implement composting and recycling programs in their schools.

Similar to the residential sector, other commercial entities that want to participate in food waste recycling must contract directly with a service provider. There are numerous businesses that participate in food waste recycling through Missouri Organic Recycling; however, the total proportion of food waste that is diverted from landfill disposal remains relatively low.

Backyard, community, and drop-off recycling activities. Since 2010, the County has supported a backyard composting program for County residents. Community support through this program has included selling compost bins and hosting educational classes for community members and attending community events. The County also



¹ Source: Shawnee Mission School District website, available at <https://www.smsd.org/about/departments/sustainability/efficiency-composting-and-recycling>

partners with Kansas State University to develop backyard composting guidance and provide education and outreach to the community.

As an alternative to curbside collection, residents may drop off organic materials for recycling at four locations in the County or the region, including Johnson County Landfill, City of Olathe Composting Facility, Missouri Organic Recycling, and Suburban Lawn and Garden.²

9.2 Review of 2013 Solid Waste Management Plan Recommendations

The following sections provide a review of the recommendations made in the 2013 SWMP and the implementation efforts that have been taken by JCDHE directly and through others in Johnson County over the last five years.

9.2.1 Recommendation #1: Encourage Residential Food Waste

Composting

- Provide public information and education programs to explain and promote backyard composting of food waste.
- Investigate the potential of collecting food waste with yard waste curbside.
- Continue to support Prairie Village's residential food composting pilot program.
- Conduct a feasibility study with a cost benefit analysis of residential food waste composting programs.

Implementation of Recommendation #1. Beginning in 2014, JCDHE provided educational support to a residential food waste composting pilot study in Prairie Village, Kansas with approximately 80 homes and 33 percent participation in the program. As of 2015, Prairie Village was ready to expand the participation to more of the city, but the waste hauler had not expressed a willingness. This program has since ceased operation.

In **2018**, Compost Collective launched a residential food waste collection service in limited locations within the County.

Relevancy to 2019 Plan. JCDHE staff will continue to encourage residential food waste composting; however, since there is no permitted facility in the County to accept food waste, a large-scale residential food waste diversion program is not being recommended.

² Source: Johnson County, Kansas website, available at <https://www.jocogov.org/dept/health-and-environment/environment/recycling/yard-waste-and-composting>

9.2.2 Recommendation #2: Promote Commercial Food Waste Composting

- Work with haulers and processors and city officials to identify barriers and issues
- Initially, target larger waste generators such as hospitals and employee cafeterias
- Continue supporting composting at K-12 school facilities
- Investigate ways to support the growth of the food composting infrastructure

Implementation of Recommendation #2. With the support of JCDHE staff, all SMSD schools and the Center for Academic Achievement participate in recycling and cafeteria composting. Johnson County was named as a regional award winner for EPA’s Food Recovery Challenge in January 2018 for their work assisting the Shawnee Mission School District in their cafeteria composting efforts.

This program has continued to grow as JCDHE is currently working with the three largest school districts in Johnson County (Shawnee Mission, Olathe, and Blue Valley) to support nearly 80,000 students in implementing composting and recycling programs.



In 2016, the BOCC established the Johnson County Food Policy Council (JCFPC). The mission of the JCFPC is to improve the health and wellbeing of individuals, the community, and our environment through a just, equitable, and sustainable food system in the County through policy recommendations, education, and collaborations. JCDHE staff are currently participating in the JCFPC to identify the role that food waste minimization and composting efforts have on the long-term plan for a sustainable food system.

PREVENTION (stopping waste from occurring in the first place), RECOVERY (redistributing food to people), and RECYCLING (repurposing waste as energy, agricultural, and other products) are the best opportunities to reduce food waste.³

³ ReFED, A Roadmap to Reduce US Food Waste by 20%, March 2016

Prevention. Each year, up to 40 percent of food in the U.S. never gets eaten, translating to \$218 billion lost, which includes the cost of food wasted on the consumer level, retail, wasted water, energy, fertilizers, cropland, and production costs. In addition to wasting resources, nearly all of the food waste ends up in landfills, where it decomposes and releases methane, a form of climate pollution that is 86 times more potent than carbon dioxide. Food is the single largest contributor to U.S. landfills today.⁴ In Johnson County, 26 percent of all disposed residential material and 20 percent of all disposed commercial material is food waste.⁵

Consumers are responsible for more wasted food than grocery stores and restaurants combined, so changing household behavior is key to reducing the problem of food waste. The average American family of four spends over \$1,500 per year on food they do not eat. The financial cost of food waste is the greatest for consumers since they pay retail prices for food (NRDC, 2016).

Residents need more education and resources to reduce waste at the source – in their homes. JCDHE will partner with JCFPC to conduct a large-scale advocacy campaign to raise awareness and educate consumers about ways to save money and prevent wasted food. JCFPC will utilize the Natural Resources Defense Council (NRDC) and the Ad Council to launch their national public service campaign, SAVE THE FOOD, that aims to combat wasted food from its largest source – consumers – by raising awareness and changing behavior. The JCFPC will partner with county government, municipalities, healthcare systems, and academia to execute the campaign.

Recovery. Nearly 60,000 Johnson County residents are food insecure and lacking reliable access to a sufficient quantity of affordable, nutritious food.⁶ JCDHE and JCFPC will work with other anti-hunger organizations to explore options for food recovery solutions that recover perishable food that would otherwise go to waste and donate it to people in need. Resources and referrals will be provided to businesses, schools, and places of worship in Johnson County through the JCDHE's Green Business Program.

Recycling. Composting education will be a component of SAVE THE FOOD JOHNSON COUNTY utilizing current resources of the JCDHE's Green Business Program.

⁴ Natural Resources Defense Council, 2016

⁵ Johnson County Department of Health and Environment, Waste Characterization Study, 2015

⁶ Feeding America, Food Insecurity in The United States, Map the Meal Gap, 2017

In 2016-2017, JCDHE partnered with the Kansas State Pollution Prevention Institute (PPI) to host a student intern to investigate and evaluate large scale kitchens' food waste reduction strategies at a hospitals, two corrections facilities, and a community college.

Relevancy to 2019 Plan. Efforts like these will continue through the green business program and as JCDHE continues to investigate opportunities to partner with businesses and existing facilities to conduct pilot programs for food waste composting.

9.3 Case Studies

Stopwaste Consistent Messaging, Terminology, and Educational Materials Unify Regional Organics Diversion Efforts. The Alameda County Waste Management Authority (of Alameda County, California), otherwise known as Stopwaste.org (Stopwaste) is a public sector entity developed in 1976 by Alameda County, 14 local governments, and two sanitary districts. Stopwaste is promoting diversion of organics, specifically food waste and other compostable materials, as a key part of its efforts to achieve 75 percent diversion.

In exchange for funding provided by Stopwaste, jurisdictions implementing food scrap recycling programs agreed to be consistent with the following:

- Accept all food scraps, including produce, meats, breads, and dairy, and residential yard waste. Excluded from the programs are diapers, grease, and palm fronds.
- Cities would arrange with service providers to have material collected and composted.
- Collection would be conducted weekly using the residential yard waste carts.
- Jurisdictions would purchase kitchen pails (approximately one to two gallons) for distribution to all residents. Implementation funding could be used for these kitchen pails.
- Jurisdictions would utilize consistent messaging, terminology, and educational materials with the regional (Countywide) program.

Stopwaste has a regional marketing campaign to provide consistent messaging and program operational requirements across all communities. For instance, all of Stopwaste's food scrap recycling education, shown below, features the green organics cart which all communities utilize for food scraps and yard waste. The marketing campaign focuses on strategies to overcome obstacles in integrating residential food waste into the composting operation, shown on Table 9-1.



Table 9-1: Strategies to Overcome Obstacles

Obstacle	Strategies
<p>The “ick” factor.</p> <p>A common objection to participating in food scrap recycling is the fact that it is perceived as unsanitary. Residents also express concerns about odors and pests resulting from their source separation of food scraps.</p>	<ul style="list-style-type: none"> • Stopwaste ensured that all images of food scraps used in marketing materials were generally sanitized and clean in appearance. • Marketing materials provide tips on how to keep food scrap separation sanitary. For instance, you may freeze food scraps until collection day to prevent degradation of materials. In addition, residents are encouraged to use aseptic containers (e.g., ice cream container, milk carton) to collect food scraps before placing them in the cart.
<p>It’s too complicated.</p> <p>Some residents perceive food scrap recycling as being too difficult.</p>	<ul style="list-style-type: none"> • All marketing and educational materials emphasize easy one, two, three steps to participate in the program. • All food scraps are accepted. The specific materials that are not accepted are diapers, palm fronds, and grease.

Obstacle	Strategies
<p>Confusion about paper products.</p> <p>Most residents are able to easily understand composting of food scraps, but they have difficulty understanding integration of paper products.</p>	<ul style="list-style-type: none"> • Stopwaste developed context-based marketing by distributing pizza boxes, coffee sleeves, and take out containers to local vendors that had food scrap recycling information printed on the side. • The “Make it Second Nature” promotional materials specifically highlight coffee sleeves and pizza boxes as being accepted in the program.

McAllen, Texas Utilizes Residential Yard Waste and Commercial Food Waste for Composting Operation. The City of McAllen, Texas has owned and operated a composting facility since 2003. The facility produces approximately 16,000 tons of compost and mulch per year utilizing the following two feedstocks:

- Residential yard waste (leaves, grass, bundled brush) collected by city staff monthly; and
- Food waste collected from grocery stores, large super-centers, and industrial food processors weekly or self-hauled by commercial generators.

The facility produces mulch and two types of compost:

- Regular compost, which is mainly composed of brush and is only screened once; and
- Premium compost, which includes food residuals (high level of organic content) and is screened twice.

9.4 Evaluation of Options

Please see Appendix E for a menu of options which were evaluated for the organics sector.

9.5 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to the management of organics.

Recommendation #1: Encourage food waste diversion at large generators.

Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Though the green business program and using efforts from SMSD as a model, assist large generators in developing food waste diversion programs.	2	Medium	Medium	Medium	Years 2-5	JCDHE, Business Partners
Seek opportunities to develop pilot programs for food waste composting utilizing existing infrastructure.	2	Medium	Medium	Low	Years 4-5	JCDHE, Private Industry, Business Partners

The green business program will be focused on large waste generators and large organizations especially as they adapt to the universal provision of services, which at this time, will not include organics collection. JCDHE will continue to work with large generators to encourage minimization and diversion of food waste to Missouri Organic Recycling in Kansas City, Missouri as well as to seek out opportunities for pilot programs to utilize existing yard waste composting infrastructure in Johnson County to integrate food waste composting.

Recommendation #2: Encourage residential source reduction and diversion.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Develop targeted marketing campaigns on appropriate purchasing, backyard composting, and food donations.	5	Low	Low	Low	Years 4-5	JCDHE
Coordinate efforts with the JCFPC and promotion of savethefood.com .	5	Low	Low	Low	Years 1-5	JCDHE, JCFPC

Promotion of appropriate purchasing, backyard composting, and food donation options is a relatively low cost, low difficulty strategy that may further increase the diversion of organics from the residential sector. The JCFPC has partnered with www.savethefood.com which provides existing high-quality marketing material that can be distributed easily. As previously discussed, a large-scale food waste diversion program, such as curbside collection, is not being recommended at this time due to limitations of existing infrastructure to compost food waste. However, if this infrastructure becomes available, JCDHE will reevaluate the priorities of the program.

10.0 HOUSEHOLD HAZARDOUS AND OTHER WASTES

10.1 Current System Review

Per K.S.A. 65-3405, JCDHE is responsible for ensuring the management of the following other wastes not covered in previous sections of the SWMP:

- Lead acid batteries
- Household hazardous waste
- Small quantities of hazardous waste
- White goods containing chlorofluorocarbons
- Pesticides and pesticide containers
- Motor oil
- Consumer electronics
- Medical wastes

The remainder of this section evaluates the current system for each material type identified above as well as others within the County.

Lead acid batteries. Lead acid batteries are not considered hazardous waste if they are intact and recycled. Split or broken batteries must be handled as hazardous waste. Automotive facilities recycle batteries through their operations and often provide recycling to County residents free of charge. The County owned and operated Phillip J. Wittek Household Hazardous Materials Collection Facility (County HHW Facility), located in Mission, Kansas, also accepts automotive batteries from residents and small commercial and industrial facilities.

HHW and small quantities of hazardous waste. HHW represents less than one percent of the residential waste stream in Johnson County. The County HHW Facility was established to manage hazardous wastes from residents and conditionally exempt small quantity generators (CESQG) and Kansas Small Quantity Generators (KSQG). Appointments are required for drop off of HHW material at no charge to residents and through a fee-based system for CESQGs.



The County HHW Facility has recently replaced two seasonal positions for a third full-time employee to meet demand. The program has also undergone a programmatic review, resulting in the recommendation for a new enclosed building in a new location to better serve the community.

The City of Olathe also owns and operates an HHW Facility. Drop offs are by appointment at no cost to residents only.

Materials accepted at the County and Olathe collection facilities include:

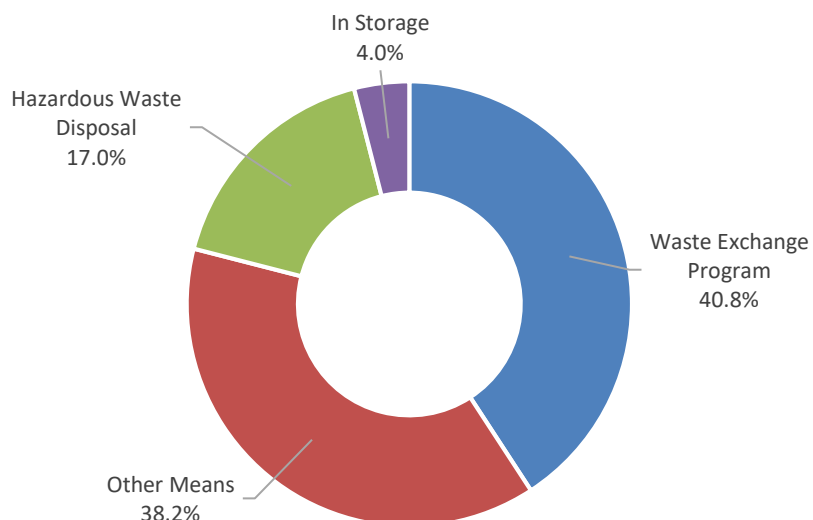
- Adhesives
- Aerosol cans
- Antifreeze
- Arts and crafts materials
- Bleach
- Brake fluid
- Cleaning products
- Common household chemicals
- Cooking oil
- Fertilizer
- Fire extinguishers
- Fluorescent bulbs
- Freon
- Gasoline/kerosene
- Helium tanks
- Latex paint
- Lead acid batteries (car batteries)
- Mercury
- Motor oil
- Oil-based paint
- Pesticides/herbicides
- Photo chemicals
- Poisons
- Pool chemicals
- Propane tanks
- Rechargeable batteries

Materials not accepted include wood, asbestos, explosive materials, medical or biowaste, and radioactive material. Quantities of material accepted at the County and HHW Facility are shown in Section 4.1.5. Quantities reported to KDHE are in tonnages except for light bulbs and tires, which are quantified by units.

Some of the materials which are accepted at the County and Olathe HHW Facility can be recycled or reused. Products in original containers are made available to for reuse by residents, businesses, and non-profit organizations. Thousands of products are redistributed annually through these facilities. Products which are commonly redistributed include:

- Lawn and garden care
- Wood working
- Home improvement
- Household cleaners
- Automotive
- Arts and crafts

Recycled products include motor oil, car batteries, tires, and latex paint. Latex paint is re-blended and provided to the public for exterior painting at no charge. Flammable liquids are blended with virgin oil and burned as fuel at cement kilns. Corrosive liquids are neutralized, and pesticides are disposed of as hazardous waste. Figure 10-1 shows the management of material accepted at the County HHW Facility during fiscal year 2017-2018.

Figure 10-1: 2017-2018 County HHW Facility Material Fate

White goods containing chlorofluorocarbons. White goods are major household appliances such as refrigerators, washing machines, and water heaters. Appliances containing chlorofluorocarbon (CFC) are required to have the coolant evacuated before disposal by a certified recycler with certified equipment. These items are set aside at the Johnson County Landfill and Olathe Transfer Station for the appropriate evacuation and disposal. Inspections are conducted by JCDHE and KDHE regarding the handling of white goods.

Pesticides and pesticide containers. Pesticides and herbicides are accepted at the County HHW Facility. Some of what is accepted is utilized by local public works departments to be used on government property. Redistribution to the general public is not allowed under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). That which is remaining is disposed of as hazardous waste through a hazardous waste contractor.

Motor oil. Automotive facilities recycle motor oil through their operations and often provide recycling to County residents free of charge. The County HHW Facility also accepts waste oil from residents and small commercial and industrial facilities.

Consumer electronics. Beginning in 2008, JCDHE collected consumer electronic waste (e-waste) at the County HHW Facility, by appointment only on the second Saturday of each month from April to October. Starting in 2016, JCDHE began a partnership with Midwest Recycling Center Electronics Recycling (MRC) to collect e-waste during four Saturday events. Additionally, in 2017, JCDHE partnered with

Secure E-cycle who hosts collection events and provides pick up for residents and businesses. JCDHE assists with marketing MRC and Secure E-cycle's efforts; however, the County does not receive data on quantity of materials collected. JCDHE no longer accepts e-waste at the County HHW Facility. The City of Olathe HHW Facility restricted e-waste drop off to only Olathe residents in 2018. Table 10-1 shows the annual quantity of electronic waste collected at the County HHW facility.

Table 10-1: E-Waste Collected at County HHW Facility

Year	Quantity (Pounds)
2013-2014	36,202
2014-2015	28,000
2015-2016	38,850
2016-2017	19,354
2017-2018	67

The following other businesses accept electronic waste within Johnson County:

- Surplus Exchange
- Best Buy
- Staples

Medical waste. Medical waste is waste which can cause infections in humans upon exposure including human blood and blood products, isolation waste, pathological waste, and discarded sharps. Medical waste is collected by licensed medical waste haulers. There are multiple processing facilities and transfer stations for medical waste within the neighboring Wyandotte County including Stericycle, MedAssure Heartland, LLC and Wellbeing Midwest located in Johnson County.

The following guidance has been provided by KDHE regarding the management of sharps:

In Kansas, it is currently legal to place sharps in a sealed puncture resistant bottle that is disposed -of in household trash or municipal solid waste generated at any location that is not a regulated health care provider. Special rigid sharps containers can be purchased from pharmacies and other medical supply companies that are suitable for disposal with other trash. Prior to placing any sharps container in the trash, write "DO NOT RECYCLE - SHARPS" on the container.

Examples of other containers that may be used for medical sharps are bleach, liquid soap, or laundry soap containers or a metal container with a screw on lid.¹

Other waste materials managed in Johnson County but not specified in K.S.A. 65-3405 or previously in the SWMP include:

- Tires
- Natural disaster waste
- Non-hazardous industrial process waste
- Street sweepings
- Wastewater sludges
- Grease trap/interceptor waste
- Seasonal cleanup waste
- Special yard waste situations
- Agricultural wastes
- Abandoned automobiles
- Mattresses
- Glass

Tires. Automotive facilities recycle tires through their operations and often provide recycling to County residents for a fee. The County HHW Facility also accepts tires. Tires collected are transported to regional waste tire facilities for recycling. There are multiple waste tire facilities permitted by KDHE within the neighboring Wyandotte County including Irving's Tire, Kaw Valley Companies, and Midland Wrecking.

Beneficial use of scrap tires is included in K.A.R 28-29-29a and includes bumpers, playground equipment, windbreaks, erosion control, and stabilization of soil or sand. Tires which are disposed of in a landfill facility must be processed by any of the following means per K.A.R. 28-29-29: shredding, cutting in half along the circumference, cutting into at least four parts (with no part being greater than 1/3 of the original tire size, chipping, crumbling, baling in a manner that reduces the volume of the waste tires by at least 50 percent or using an equivalent volume-reduction process that has received prior approval, in writing, from the secretary.

¹ Available online: <http://www.kdheks.gov/environment/sharpsdisposal.html>

Natural disaster waste. The County is responsible for coordinating public works activities and resources in unincorporated areas, while cities are responsible for their respective areas, per the Johnson County Emergency Operations Plan (CEOP), ESF3 Public Works and Engineering Annex. The County maintains a Debris Management Plan to respond to potential events generating a significant amount of additional debris above the currently managed amount. JCDHE is also evaluating the feasibility of a large debris management site to handle storm debris.

Non-hazardous industrial process waste. Non-hazardous industrial process waste is disposed of in Subtitle-D landfills. Quantities and type of this material disposed is recorded and reported by the facility.

Street sweepings. Street sweeping is generally contracted by municipal entities in the County. The waste generated often has high content of sand and salt due to road treatment during winter weather and is disposed of in Subtitle-D landfills.

Wastewater sludges. Wastewater sludge is transported by septic haulers licensed by JDCHE. Much of the sludge is transported to wastewater treatment facilities for treatment. A portion of the dewatered sludge from the County's wastewater treatment process is being disposed of at the Johnson County Landfill.

Grease trap/interceptor waste. Grease trap and interceptor waste is collected by private haulers to wastewater treatment facilities for treatment.

Seasonal cleanup waste. Seasonal clean up wastes are managed through normal yard waste collection and drop off as discussed in Section 9. In the event of significant weather, cities may provide temporary drop off locations with processing equipment to help manage the increased quantity.

Special yard waste situations. In coordination with the K-State Research & Extension office, JCDHE continues to monitor the spread of the Emerald Ash Borer (EAB). Data is collected and distributed to the public. At this point, the EAB has not yet had significant impacts on the wood waste generated in the County. However, it is anticipated that the impact may increase significantly from 2018 to 2023. The County shall comply with the Kansas EAB Readiness and Response Plan to provide continuity of efforts, if needed, to manage the increase anticipated as spread continues. JCDHE is also evaluating the feasibility of a large debris management site to handle EAB waste.

Agricultural wastes. Agricultural wastes from swine and cattle operations are land injected and land applied or composted.

Abandoned automobiles. The County (for unincorporated areas) and most cities within the County have restrictions on the storing of non-functional automobiles. If ownership cannot be determined for an abandoned vehicle, the property owner is responsible for removal and transport to a scrap yard for recycling.

Mattresses. Avenue of Life, a 501c3, has partnered with IKEA and other retail mattress stores in the County to divert over 500 tons of wood, metal, polyester, and foam padding yearly through their mattress recycling program in Kansas City, Missouri. Another non-profit, Sleepyhead Beds collects and sterilizes gently used mattress and has provided over 16,000 mattresses to community members in need since 2010.

Glass. Ripple Glass has collection recycling bins located all the Metro area – frequently in shopping center and grocery store parking lots. On average, they collect and recycle approximately 5,000 tons of glass material per year from recycling bins located within the County. Collected material is processed and made into fiberglass insulation and new bottles. There is also availability for curbside glass collection by Atlas Glass, KC Curbside Glass, and Glass Bandit.

10.2 Review of 2013 Solid Waste Management Plan Recommendations

The following sections provide a review of the recommendations made in the 2013 SWMP and the implementation efforts that have been taken by JCDHE directly and through others in Johnson County over the last five years.

10.2.1 Recommendation #1: Expand Collection and Recycling Opportunities for Consumer Electronics and Household Hazardous Materials

- Provide educational material on the importance of e-waste and hazardous waste collection and recycling.
- Explore disposal options for sharps and syringes and post options on County website.
- Continue to publicize collection and recycling options.
- Continue to partner with cities and others on promotional efforts.
- Encourage cities to host community recycling events.
- Continue to seek out additional recycling opportunities for materials collection at the County's HHW site.

Implementation of Recommendation #1. In 2018, JCDHE's Latex Paint Re-blending program won a national award for "most innovative program" from the North American Hazardous Materials Managers Association. The paint program re-blends quality latex paint and resells it, earning money to assist in funding the program. All of the metal paint cans are then crushed and recycled.

JCDHE has recently formed partnerships with several new reuse partners including a pool and spa maintenance company, Habitat ReStore, and a craft/hobby non-profit.

Relevancy to 2019 Plan. The development of a new HHW facility will increase availability for material drop off by providing a more centralized and convenient location. JCDHE will continue to coordinate additional collection events utilizing material specific vendors.

10.3 Case Studies

Municipalities Collaborate to Provide Regional HHW Disposal Solutions. Since 1997, the City of Fort Worth, Texas has owned and operated its Environmental Collection Center (ECC), a permanent collection and processing facility for HHW materials. Fort Worth leads a regional HHW program centered around the ECC, with over 50 municipalities (cities and counties) participating to provide their residents with safe and local HHW disposal options. Residents of participant municipalities have the option to self-haul their HHW material to the ECC or participate in one of approximately 75 mobile collection events that Fort Worth hosts in the region each year. Mobile events are requested by participant municipalities and the ECC provides a mobile collection trailer and event staff trained in compliance with state and federal regulations for handling and transport of HHW materials. The participant municipality provides a location for the event and pays for disposal costs of material collected.

Fort Worth's program is funded by participant municipalities at a flat cost of \$50 per resident drop-off, whether a resident visits the ECC or participates in a mobile event. Participating municipalities are billed on a quarterly basis based on the number of their residents that participated that quarter, and the cost covers all disposal, transportation, and other operational expenses attributable to each municipality. Municipalities have flexibility in how they choose to fund their participation in the program. Some offer a paid voucher system in which each resident pays \$50 for each visit to the ECC or mobile event, and some are able to offer the program at no cost to residents, instead choosing to reimburse Fort Worth through different funding sources, such as a stormwater utility.

The ECC is accessible to over 780,000 households in Fort Worth and surrounding municipalities.² The permanent facility provides services to the entire service area and mobile collection events provide added convenience for residents in municipalities that choose to fund these local events. In 2016, the ECC collected and disposed of 2.5 million pound of HHW material from 25,300 residents through drop-off at the permanent facility and mobile collection events. In addition to material drop-off, the ECC also has a reuse center, where unused or leftover HHW materials that are suitable for use are made available to residents of Fort Worth and participating municipalities at no charge. There are two primary benefits of incorporating a reuse center as a part of any HHW program. Reuse encourages source reduction and waste minimization and also helps to minimize disposal costs by reducing the amount of material that needs to be disposed, instead diverting it for reuse.

The City of Arlington is a participant in Fort Worth's regional program and has further expanded HHW disposal opportunities for its residents by planning, hosting, and staffing its own mobile collection events. Arlington purchased its mobile collection trailer, the Crud Cruiser, in 2006 through a grant funded by the North Central Texas Council of Governments (NCTCOG). Each month, Arlington city staff host a Crud Cruiser event in a different area or neighborhood within the city, providing local opportunities to many residents throughout the year. Through Arlington's interlocal agreement with Fort Worth, HHW materials collected at Arlington's mobile events are transported to the ECC for disposal. In this way, Arlington is able to leverage a regional facility and partnership to provide even more convenient and regular disposal opportunities to its residents.

San Mateo County's Reusable Bag Ordinance Increases Number of Shoppers Providing Their Own Bag by 100 Percent. San Mateo County, California, passed a Reusable Bag Ordinance in 2012 banning a retailer from providing single-use carry-out bags and requiring retailers to charge a fee per reusable plastic or paper bag provided to shoppers. Fee amounts began at 10 cents per bag in 2012 and increased to 25 cents per bag in 2015. Restaurants were not included in this ordinance. A survey conducted nine to thirteen months after ordinance implementation showed a 162 percent increase in people bringing their own bags to the store, 66 percent decrease in people purchasing a bag that they would have normally received for free before, and a 130 percent increase in people refusing a bag all together. Additionally, orders for bags by retailers to supply customers decreased by approximately 84 percent.³

Jackson, Wyoming Phasing in Plastic Bag Ban. As a part of Teton County's Integrated Solid Waste and Recycling's "Road to Zero Waste", the City of Jackson is currently phasing in a plastic bag ban over

² The number of households in the service area is based on 2016 program data provided by the City of Fort Worth.

³ <https://www.smchealth.org/general-information/breaking-our-bag-habit>

2019. Effective April 15th, 2019, no grocer (>5,000 square feet) or retailer (>19,000 square feet) shall provide a single-use plastic bag to a consumer at the point of sale. Effective November 1st, 2019, no retailer or retail store shall provide a single-use plastic bag to a consumer at the point of sale. Exemptions are made for non-checkout product bags – such as dry cleaner bags, newspaper bags, and bags used inside stores to contain bulk items such as produce and nuts or bags used to wrap fish or frozen meat.⁴ Single-use bags shall be replaced by reusable bags, paper bags, or reusable plastic bags (minimum 4 mil thick). Those organizations subject to these regulations are defined by size and function and phasing designed to support the lead time required for a small business to adapt.

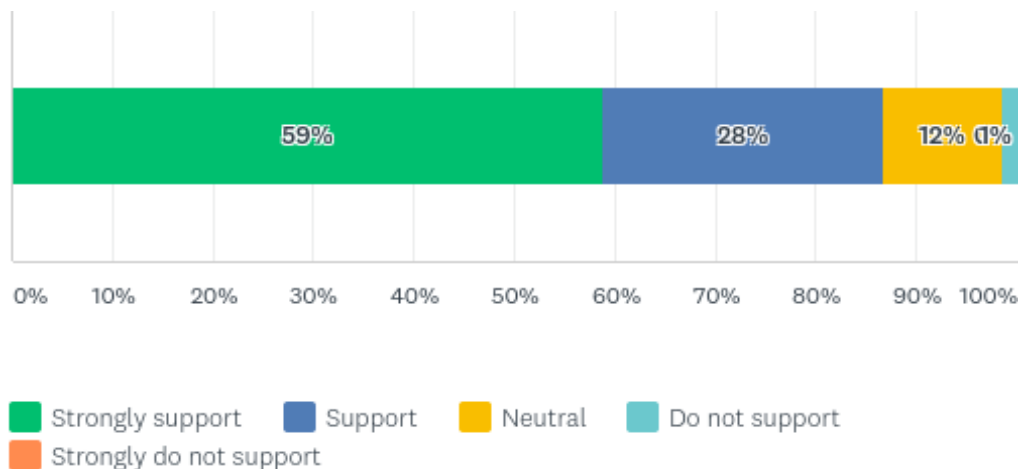
10.4 Evaluation of Options

Please see Appendix E for a menu of options which were evaluated for the HHW and other special wastes sector.

10.5 Stakeholder Engagement

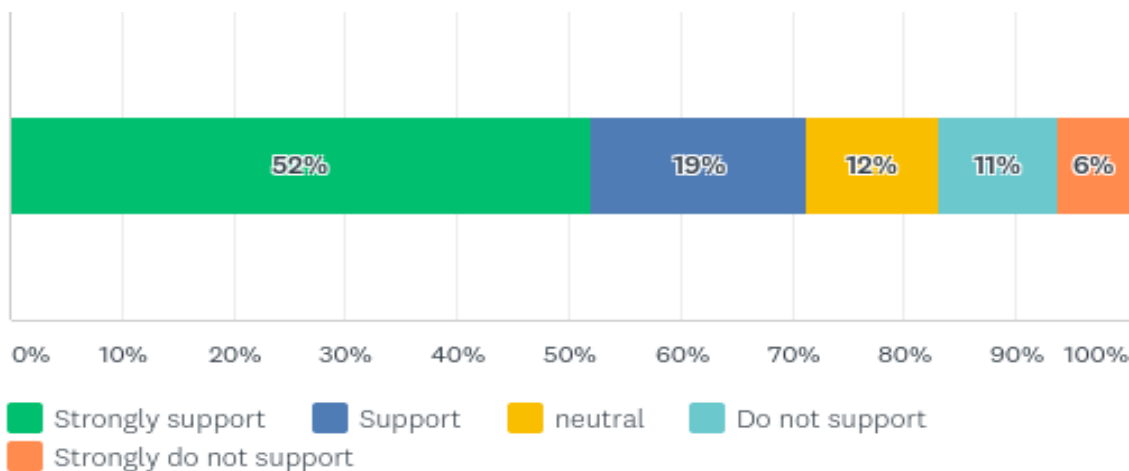
Details pertaining to the overall Stakeholder Engagement associated with this Plan are included in Section 1.7 and full results in Appendix C. As a part of the survey conducted on-line and distributed at the public meeting, the following feedback pertaining to HHW and other special waste services were received:

1. Johnson County operates a HHW collection facility (for paint and household chemicals). Drop offs are by appointment year round, three days a week. To what extent do you support Johnson County in increasing access, hours and locations?



⁴ <https://www.jacksonwy.gov/505/Plastic-Bag-Ban-Ordinance>

2. Would you support a 'Ban the Bag' effort to eliminate the use of plastic bags in Johnson County through bag fees?



10.6 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to the HHW and other special wastes.

Recommendation #1: Explore options to cost-share existing and future operations with cities within the County.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Consider a County-wide approach to HHW management, which would involve a centralized facility and partnerships with multiple municipalities.	1	Low	High	High	Years 1-2	JCDHE, Consultant

JCDHE understands the size and location restrictions of their current HHW facility and have requested funding to support the development of a new facility. As JCDHE progresses with the planning of this facility, there are multiple options to consider. Recognizing that the City of Olathe currently has an HHW facility and accepts materials (e-waste exempt) from all Johnson County residents, the location, capacity, and funding of this facility should be considered in the County’s planning. The location of the new HHW

facility should provide convenience for residents across the County to drop off materials, likely northeast Johnson County due to the location of Olathe’s facility. An evaluation of program costs should be performed to determine whether the costs of construction and operation of the facility should be shared with the City in which it is located or with only County-funds, as well as options to optimize funding agreements with the City of Olathe facility. Additionally, the County could provide portable drop off locations or mobile events in coordination with a new facility or expansion of City of Olathe’s facility.

Recommendation #2: Encourage the reduction or elimination of single-use plastic bags.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Develop targeted campaign to provide public education on single-use plastic bag recycling opportunities and reducing the use of single-use plastic bags.	2	Low	Low	Low	Years 1-3	JCDHE
Conduct a feasibility study on the elimination of single-use plastic bags in Johnson County through taxes, fees, a ban, etc.	2	n/a	Medium	Medium	Years 3-5	JCDHE, Consultant

The reduction of single-use plastic bags is a topic of great passion for some residents of the County and for multiple members of the SWMC. Municipalities within the County have been unsuccessful in their independent “bag bans” in their respective communities. JCDHE will continue to utilize its public communication resources to educate the public on the difficulties in managing plastic bags at the landfill and the MRF and the alternatives to single-use plastic bags in regular shopping activities. However, due to the County’s limited regulatory control, the role of municipalities, the variety of implementation options and associated legal complexities, a feasibility study should be conducted to determine the best course of action to significantly decrease single-use plastic bags in the County.

Recommendation #3: Continue education of source reduction and reuse and importance of recycling of hard to manage materials.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Market existing resources such as recyclespot.org . and HHW facilities.	5	Low	Low	Low	Years 1-5	JCDHE

Promotion of existing reuse options is a relatively low cost, low difficulty strategy that may increase the responsible management of HHW materials. The Mid-America Regional Council operates www.recyclespot.org which is advertised as “Greater Kansas City’s one-stop spot for recycling information. This local resource pairs users with appropriate drop off or processing location depending on the condition and type of material. Additional opportunities may also be available for advertising existing HHW facilities located within the County including reminders on utility bills.

11.0 COUNTY OPERATIONS AND RESOURCES

11.1 Current System Review

JCDHE focuses on waste minimization in County operations and within County facilities. The 2013 SWMP identified a goal of Zero Waste in County operations by 2020. The Sunset Drive office building was selected as a pilot for the program prior to implementation in all County facilities. Waste streams targeted for diversion include electronic and food waste. Electronic waste is now recycled in all County facilities and food waste composted in the Sunset Drive office building. Best practices have been developed for the purchasing of materials such as batteries, printers, and copiers.

Although the County makes a conscious effort to implement sustainable solid waste management practices into their facilities and operations, a majority of JCDHE's time and effort is dedicated to supporting external clients including residents and local business.

11.2 Review of 2013 Solid Waste Management Plan Recommendations

The following sections provide a review of the recommendations made in the 2013 SWMP and the implementation efforts that have been taken by JCDHE directly and through others in the County over the last five years.

11.2.1 Recommendation #1: Aggressively Educate and Promote Source Reduction, Reuse, Recycling, and Composting

- Review existing city, state, and regional educational and promotion programs
- Work with cities to develop and implement education and promotional campaigns
- Update campaigns as needed
- Continue to provide public educational presentations, on request
- Increase citizen familiarity with environmental services from 30 percent to 35 percent
- Provide direct link to environmental services on County's home page
- Investigate new and support existing public/private partnerships
- Investigate existing industry trade associations reuse and recycling municipal assistance programs
- Encourage recyclable and composting market development through review and revision, if necessary, of County purchasing policies; work with cities to do the same

Implementation of Recommendation #1. Since this recommendation is focused on the residential sector, efforts relating to implementation of this recommendation and relevancy to the 2019 Plan are discussed in Section 5.2.

Relevancy to 2019 Plan. JCDHE will continue to focus on education and outreach to promote source reduction, reuse, recycling and composting in coordination with, and including specific tactics described within, 2019 recommendations.

11.2.2 Recommendation #2: Develop a Measurement System to Track Reuse, Recycling, Composting, and Disposal

- Design and implement a tracking system
- Continue to require residential haulers report, on an annual basis, quantities of solid waste, recyclables, and yard waste collected
- Investigate options to encourage commercial haulers to report similar data
- Discuss commercial reuse and recycling data collection issues with stakeholders

Implementation of Recommendation #2. Through the licensing process provided by the 2010 revision to the Johnson County Code of Regulations for Solid Waste Management, haulers providing residential services are required to report quantities of refuse, recyclables, and yard waste collected to JCDHE.

Relevancy to 2019 Plan. The ability of JCDHE to have data pertaining to residential collection of refuse, recyclables, and yard waste is critical to the future planning of solid waste management operations and to gauge efficacy of JCDHE's efforts in promoting source reduction and diversion. Through the implementation of similar licensing of commercial haulers through the universal provision of services (discussed in Section 7.6 and Case Study included in Appendix F), JCDHE would obtain similar information to support source reduction and diversion efforts in the commercial sector. Additionally, this would provide more substantial data pertaining to the total solid waste generated within the County and assist with County decisions on the investment of potential facilities or other significant changes to the existing solid waste management system.

11.2.3 Recommendation #3: Reduce Solid Waste Generated from County Operations

- Continue increasing recycling and composting activities through the work of the County's inter-departmental Waste Reduction Group
- Continue to educate County employees about on-the-job- and at-home waste reduction strategies and programs
- Identify source reduction and recycling opportunities through departmental waste audits and employee surveys
- Implement waste reduction strategies identified in the waste audits

- Incorporate waste reuse and reduction criteria in County purchasing system
- Incorporate waste reuse and reduction criteria in County government contracts, including County construction projects
- Achieve near zero waste disposal in County operations by taking lessons learned from the pilot building to other County buildings by 2020.
- Encourage the cities to incorporate similar waste reduction requirements in city operations and contracts

Implementation of Recommendation #3. The County's Waste Reduction Group continues to work on increasing recycling across County government operations. The Sunset Drive building started a food waste composting program in 2014 to collect and process waste from cafeteria waste through composting.

A County wide electronic recycling program has been implemented. In 2016, Johnson County identified an opportunity to modify a recycling program that lacked consistency across all County facilities. The County is currently evaluating options to build a source reduction and recycling program that will be implemented across county operations.

The County is currently developing a sustainability plan to provide guidance on the applicability of sustainability to County operations and facilities. JCDHE is supporting the development of this document.

Relevancy to 2019 Plan. JCDHE and other County resources will continue to promote source reduction and diversion through internal operations and at County facilities. Multiple County-owned facilities will be incorporated into the first phase of the commercial universal provision of services (discussed in Section 7.6), allowing the County to set an example for large retailers and businesses in their implementation of recycling programs.

11.3 Evaluation of Options

Please see Appendix E for a menu of options which were evaluated for the county operations.

11.4 Recommendations

Based on the current system review, review of the 2013 plan implementation, benchmarking and case studies, and an evaluation of options, the following recommendations are being made pertaining to county operations.

Recommendation #1: Encourage continued stakeholder engagement for successful solid waste management plan implementation.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Encourage municipalities to develop independent environmental committees and invite committee members to SWMC meetings and other strategic discussions.	4	Low	Low	Low	Years 1-5	JCDHE, SWMC, Municipalities
Encourage participation from other solid waste haulers, processors, and disposal facility personnel in the SWMC and at other strategic discussions.	4	Low	Low	Low	Year 1-5	JCDHE, SWMC, Private Industry

Due to the County's limited ability to regulate some of the variables of solid waste management, the role that municipalities play in solid waste management becomes more significant. JCDHE will continue to act as a technical resource for municipalities, providing them recommendations on specific tactics to increase diversion of C&D waste (Section 8.5) and promote the development of recycling programs at multifamily residential complexes (Section 6.5). Understanding the importance of the municipality's role, JCDHE will encourage the independent creation of municipal environmental committees, similar to what is being done in the City of Overland Park and Mission, Kansas. The SWMC will invite municipal committee members, as well as solid waste industry personnel to participate in regular meetings to increase collaboration of the County-wide solid waste management efforts. This additional stakeholder engagement, along with other avenues, will be critical in the planning, development, and implementation of the commercial universal provision of services (Section 7.6).

Recommendation #2: Support development of sustainability plan.						
Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Support the development of a sustainability plan by the Sustainability Committee and JCDHE staff.	TBD	TBD	TBD	TBD	TBD	TBD
Support the implementation of a sustainability plan by the Sustainability Committee and JCDHE staff.	TBD	TBD	TBD	TBD	TBD	TBD

JCDHE staff are currently assisting with the development of a sustainability plan. Action items associated with the sustainability plan will be developed upon completion of the document.

APPENDIX A – SUPPORTING PLAN INFORMATION

APPENDIX A – SUPPORTING PLAN INFORMATION

1.1 Soils

The latest soil survey of Johnson County, Kansas was conducted by the Natural Resources Conservation Services (NRCS) in 2005. Table 4, from the survey, is attached and describes the acreage and proportionate extent of the soils in the County.

1.2 Geology and Hydrogeology

The following description is obtained from Geology and Ground-water Resources of Johnson County, Northeastern Kansas:

The rocks above the Precambrian basement are 2,150 to 2,550 feet thick in Johnson County and are all sedimentary in origin. They include rocks of Cambrian, Ordovician, Devonian, Mississippian, Pennsylvanian, Cretaceous, and Quaternary age. The exposed rocks of Pennsylvanian, Cretaceous, and Quaternary age are about 700 feet thick.

The outcropping Pennsylvanian rocks have an aggregate thickness of about 500 feet and consist chiefly of alternating shale and limestone units ranging from about 2 to 100 feet in thickness, and minor amounts of fine-grained sandstone. The fresh or slightly saline water supplies available from these rocks are small; well yields average less than 10 gallons per minute, the rocks but yields as great as 50 gallons per minute are known. Wells obtain fresh to slightly saline water at a depth of 250 feet or less, but locally groundwater at depths of less than 100 feet is moderately saline. The chemical quality of groundwater pumped by domestic and stock wells from bedrock aquifers ranges from excellent to poor, but many of the bedrock wells yield water that is more mineralized than groundwater pumped from unconsolidated Pleistocene deposits.

Wisconsinan and Recent alluvial deposits 40 to 70 feet thick in the Kansas River valley yield the largest supplies of groundwater in the county. Irrigation, industrial, and municipal wells pump water at rates of 150 to 1,000 gallons per minute from the Kansas River alluvium. Alluvial deposits in the smaller stream valleys range from about 20 to 75 feet in thickness. Wells yield 25 to 100 gallons per minute from deposits in the larger tributary valleys and 1 to 10 gallons per minute in the smaller tributary valleys. Kansan deposits, chiefly Atchison Formation and undifferentiated fluvial deposits, are extensive enough southwest of DeSoto and near Holliday to comprise a significant aquifer capable of yielding 1 to 10 gallons per minute to wells in the area.

Locally 50 to 100 gallons per minute can be obtained. Groundwater from the Pleistocene aquifers is good except for high carbonate hardness and generally excessive iron content.

Water pumped from wells in the Pennsylvanian rocks has a much greater range in chemical quality than groundwater in the Pleistocene aquifers; the very shallow wells generally yield water that is hard but otherwise of good quality. Wells tapping aquifers at depths of 50 to 250 feet yield water of generally poorer quality than wells tapping the shallow aquifers.

The dominant regional structure is the Prairie Plains monocline of post-Permian pre-Cretaceous age. The surface rocks in Johnson County dip northwestward at an average rate of about 12 feet per mile. The regional structure is modified across the central part of the county by the northeast-trending Gardner anticline.¹

1.3 Transportation

Johnson County is served by four railroads: the Atchison, Topeka, and Santa Fe; the St. Louis and San Francisco (Frisco); the Missouri, Kansas, and Texas (Katy); and the Missouri Pacific. In addition to the extensive railroad network, the county is crossed by Interstates 35, 435, and 635; U.S. Highways 50, 56, 69, and 169; and Kansas Highways 7, 10, 58, and 158. Several airports are located in the county, and the Kansas City International and Municipal Airports are within a one-hour drive for county residents.²

1.4 Air Pollution

The following description is obtained from the 2013 Johnson County Greenhouse Gas Inventory Update:

The emissions generated from the entire community in Johnson County in 2013 totaled 11.2 million MTCO_{2e}. This is equivalent to every resident of Johnson County driving roundtrip from Olathe to Topeka every day for an entire year. One-fifth of the state of Kansas would have to be entirely covered in trees to sequester this amount of carbon. When comparing emission sources included in both the 2005 and 2013 inventories, Johnson County has seen a 3 percent decrease in its community-wide emissions since 2005, which equates to a less than 1 percent annual reduction.

Total emissions per capita has been trending downward from 20 MTCO_{2e} per capita in 2005 to 16 MTCO_{2e} per capita in 2013 - a 19 percent reduction.

¹ Geology and Ground-water Resources of Johnson County, Northeastern Kansas, Howard G. O'Connor, 1971

² Soil Survey of Johnson County, Kansas, NRCS, 2005.

The building sector represents about 60 percent of total community emissions in Johnson County, mostly split between residential and commercial buildings. Over 80 percent of the building sector emissions are electricity consumption. The next largest contributing sector is on-road transportation at 21 percent of the total inventory, mostly from gasoline-fueled passenger vehicles.³

1.5 Sewage

Johnson County Wastewater is responsible for the safe collection, transportation, and treatment of wastewater generated by residential, industrial, and commercial customers. It has more than 5,600 aboveground assets, including six major treatment plants and 31 pump stations. Underground assets include more than 2,260 miles of sewer line, including approximately 58,000 manholes, approximately 24 miles of active low-pressure sewers, and 42 miles of active force mains. Johnson County Wastewater's permitted treatment capacity in 2016 was approximately 65 million gallons per day.

Johnson County Wastewater provides sanitary sewer service to more than 400,000 people throughout the county. In 2016, it's active account base of more than 140,600 was composed of:

- 6,035 commercial accounts (4.29 percent)
- 113 industrial accounts (0.08 percent)
- 17,336 multi-family accounts (12.33 percent)
- 117,122 single-family residential accounts (83.30 percent)⁴

1.6 Water Resources and Public Water Supply

The following description is obtained from NRCS's 2005 Soil Survey of Johnson County, Kansas:

Nearly all of the water required for industry is pumped from alluvium in the Kansas River Valley. The municipalities within the county obtain water from either the Kansas River alluvium, ground water from wells, or runoff trapped in Lakes. Several rural water districts have been organized across the county. Small drilled wells throughout the county are used for private residences. These wells yield small quantities of water that range in quality from fresh to very saline. Many

³ 2013 Greenhouse Gas Inventory Update prepared for Johnson County, Kansas, Brendle Group, October 2014.

⁴ Johnson County Wastewater, About Us, <https://www.jocogov.org/dept/wastewater/about-us/overview>

of the wells yield water that also contains varying amounts of bicarbonates, nitrates, sulfates, or iron. Some of these wells supply water that is suitable only for livestock watering purposes.⁵

⁵ Soil Survey of Johnson County, Kansas, NRCS, 2005.

1.7 Local and Regional Land-Use Development Plans

There are a variety of comprehensive plans and planning documents provided on Johnson County's website⁶. They include the following:

- CARNP: Comprehensive Arterial Road Network Plan
- K-10 Corridor Study Update
- New Century AirCenter Preliminary Development Plan
- Rural Comprehensive Plan & Brochure
- Southwest Area Plan
- Stilwell Community Plan & Brochure

Additionally, the Mid-America Regional Council develops regional plans for the Kansas City Metropolitan Area which includes Johnson County and eight other local counties. One of the recent land-use development plans include the Regional Plan for Sustainable Development, updated in March 2014, which is a compilation of key regional plans and strategies with common goals and themes.⁷

⁶ Johnson County Planning & Development website: <https://www.jocogov.org/dept/planning-and-codes/pln/comprehensive-plan-and-planning-documents>

⁷ Mid-America Regional Council website: <http://www.marc.org/Regional-Planning/Creating-Sustainable-Places/Plans/Regional-Plan-for-Sustainable-Development>

SOIL SURVEY TABLE

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
4015	Chase silt loam, occasionally flooded-----	3,507	1.1
4752	Sogn-Vinland complex, 3 to 25 percent slopes-----	14,122	4.6
7031	Eudora silt loam, occasionally flooded-----	86	*
7035	Eudora-Bismarckgrove fine sandy loams, overwash, occasionally flooded---	1,359	0.4
7036	Eudora-Bismarckgrove silt loams, occasionally flooded-----	1,254	0.4
7050	Kennebec silt loam, occasionally flooded-----	9,935	3.2
7051	Kennebec silt loam, frequently flooded-----	6,576	2.1
7055	Kimo silty clay loam, occasionally flooded-----	114	*
7089	Stonehouse-Eudora fine sandy loams, overwash, occasionally flooded-----	115	*
7090	Wabash silty clay loam, occasionally flooded-----	511	0.2
7105	Belvue silt loam, escarpment, 2 to 12 percent slopes-----	23	*
7106	Eudora-Bismarckgrove silt loams, rarely flooded-----	1,527	0.5
7123	Eudora silt loam, rarely flooded-----	515	0.2
7155	Kimo silty clay loam, rarely flooded-----	123	*
7170	Reading silt loam, rarely flooded-----	2,026	0.7
7251	Grundy silt loam, 1 to 3 percent slopes-----	15,941	5.2
7261	Gymer silt loam, 3 to 7 percent slopes-----	19	*
7285	Ladoga silt loam, 3 to 8 percent slopes-----	6,522	2.1
7286	Ladoga silt loam, 8 to 15 percent slopes-----	1,316	0.4
7302	Martin silty clay loam, 3 to 7 percent slopes-----	10,024	3.3
7330	Martin-Vinland silty clay loams, 5 to 10 percent slopes-----	1,448	0.5
7433	Morrill loam, 3 to 7 percent slopes-----	4,764	1.6
7460	Oska silty clay loam, 3 to 6 percent slopes-----	1,692	0.6
7462	Oska-Martin complex, 4 to 8 percent slopes-----	46,069	15.0
7502	Pawnee clay loam, 3 to 7 percent slopes-----	5,347	1.7
7525	Chillicothe silt loam, 2 to 5 percent slopes-----	54,136	17.6
7535	Sharpsburg silt loam, 4 to 8 percent slopes-----	5,042	1.6
7545	Sharpsburg-Urban land complex, 4 to 8 percent slopes-----	22,136	7.2
7603	Sibleyville loam, 3 to 7 percent slopes-----	4,608	1.5
7607	Sibleyville-Vinland loams, 3 to 7 percent slopes-----	1,576	0.5
7658	Vinland-Rock outcrop complex, 15 to 45 percent slopes-----	9,453	3.1
7805	Arisburg silt loam, 1 to 3 percent slopes-----	990	0.3
8101	Hepler silt loam, occasionally flooded-----	37	*
8301	Verdigris silt loam, frequently flooded-----	3,441	1.1
8302	Verdigris silt loam, occasionally flooded-----	174	*
8390	Wynona silt loam, occasionally flooded-----	42	*
8501	Mason silt loam, rarely flooded-----	578	0.2
8640	Bucyrus silt loam, 1 to 3 percent slopes-----	5,298	1.7
8641	Bucyrus silty clay loam, 3 to 8 percent slopes-----	556	0.2
8663	Clareson-Rock outcrop complex, 3 to 15 percent slopes-----	688	0.2
8789	Lebo channery silty clay loam, 15 to 30 percent slopes-----	344	0.1
8911	Summit silty clay loam, 1 to 3 percent slopes-----	887	0.3
8912	Summit silty clay loam, 3 to 7 percent slopes-----	5,301	1.7
8953	Wagstaff silt loam, 1 to 3 percent slopes-----	347	0.1
8955	Wagstaff silty clay loam, 3 to 7 percent slopes-----	2,801	0.9
8957	Wagstaff-Summit complex, 3 to 7 percent slopes-----	3,110	1.0
8962	Woodson silt loam, 1 to 3 percent slopes-----	45,909	15.0
9967	Landfill-----	150	*
9971	Arents, earthen dam-----	10	*
9982	Fluvents, frequently flooded-----	398	0.1
9983	Gravel pits and quarries-----	224	*
9984	Made land-----	78	*
9986	Miscellaneous water-----	48	*
9991	Orthents, shallow-----	517	0.2
9993	Pits-----	359	0.1
9999	Water-----	2,893	0.9
	Total-----	307,066	100.0

* Less than 0.1 percent.

APPENDIX B – SUMMARY OF RECOMMENDATIONS

	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party	
Facilities	Recommendation #1: Design and construct a new HHW building and/or portable drop-off options.						
	Develop conceptual plan for new HHW building or expansion to an existing facility, and optional portable drop-off locations.	1	n/a	Medium	Medium	Years 1-2	JCDHE, Consultant
	Site, design, and construct new HHW building or expansion to an existing facility.	1	Medium	High	High	Years 2-3	JCDHE, Consultant
	Recommendation #2: Evaluate infrastructure needs for organics management.						
	Continue to monitor capacity of existing organics processing facilities.	2	n/a	Low	Low	Years 1-5	JCDHE
	Closely track quantities of organic materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for large scale food waste composting.	2	Medium	Medium	Low	Years 3-5	JCDHE, Private Industry
	Recommendation #3: Continue to evaluate long-term municipal solid waste infrastructure needs.						
	Continue to monitor remaining life in Johnson County Landfill.	2	n/a	Low	Low	Years 1-5	JCDHE
	Conduct a feasibility study on the siting and development of a new landfill and/or transfer station(s) via a public private partnership.	2	n/a	Medium	Medium	Years 2-5	JCDHE, Consultant
	Recommendation #4: Evaluate infrastructure needs for disposal and recycling of construction & demolition waste.						
	Continue to monitor remaining capacity of existing C&D landfills.	4	n/a	Low	Low	Years 1-5	JCDHE
	Encourage private development of a regional C&D MRF.	4	Medium	Low	Low	Years 3-5	JCDHE, Private Industry
	Recommendation #5: Evaluate infrastructure needs for recycling processing facilities.						
	Continue to monitor capacity of existing MRFs.	4	n/a	Low	Low	Years 1-5	JCDHE
	Closely track quantities of recycled materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for recycling processing.	4	Medium	Medium	Low	Years 1-5	JCDHE, Private Industry

	Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party	
Single-Family Residential	Recommendation #1: Increase diversion and reduce contamination.							
	Continue participation, composition, and contamination studies to track effectiveness of educational outreach.	2	n/a	Medium	Low	Years 1-5	JCDHE	
	Perform an analysis of the quantity and quality of materials in the County's recycling systems and develop a County-wide public educational campaign focused on increasing recycling participation and decreasing contamination.	2	Medium	High	Medium	Years 2-3	JCDHE, Consultant	
	Recommendation #2: Provide technical assistance for refuse and recycling cart size selection.							
	Advise residents on cart size selection through public education and requests.	5	Medium	Low	Low	Years 1-5	JCDHE, Cities, Private Industry	
	Recommendation #3: Continue standardization of services and encourage cooperative contracting.							
Single-Family Residential	Develop standard list of acceptable recyclable materials for collection in coordination with processing facilities and MARC.	5	Low	Low	Low	Years 1-3	JCDHE, MARC, Private Industry	
	Develop standard contract to be made available to HOA's, cities, etc. for hauling, processing, and disposal.	5	Low	Medium	Medium	Years 3-5	JCDHE, Consultant	
Multifamily Residential	Recommendation #1: Support cities and private developers in planning and troubleshooting recycling in multifamily residential complexes.							
	Develop guidance document and distribute to cities with example ordinance language for multifamily residential development pertaining to providing convenient recycling, necessary container sizing, and appropriate enclosures for recycling infrastructure.	3	Medium	Medium	Medium	Years 3-5	JCDHE, Consultant	
	Provide technical support to multifamily residential complexes through the green business program, particularly as the universal provision of services is implemented.	3	Medium	Low	Low	Years 3-5	JCDHE, Cities, Private Industry	
Commercial	Recommendation #1: Promote consistency and oversight over the commercial haulers operating in Johnson County.							
	Develop implementation plan, ordinance, and phasing plan for universal provision of services for commercial haulers.	1	n/a	Medium	Medium	Year 1	JCDHE, Consultant	
	Conduct stakeholder engagement and public education pertaining to changes in the commercial solid waste management collection system.	1	n/a	Medium	Low	Years 1-5	JCDHE, Consultant	
	Implement ordinance that requires haulers to become licensed through County and report the amount of refuse, recyclables, and/or organics collected on an annual basis.	1	n/a	High	Low	Years 3-4	JCDHE	
	Implement ordinance that requires haulers to provide recycling and/or organics along with refuse collection services for their customers.	1	High	High	Low	Years 3-4	JCDHE	
	Recommendation #2: Continue the Green Business Program, focused on supporting the phasing in of the commercial universal provision of services.							
Target green business program partners associated with the phasing plan developed for the universal provision of services - larger commercial entities to small businesses.	3	High	Medium	Low	Years 1-5	JCDHE, Business Partners		

	Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
C&D	Recommendation #1: Encourage government incentives and regulations to decrease generation and increase diversion of construction & demolition waste.						
	Modify County regulations to require recycled material (ie. crushed concrete) used on all applicable County projects or projects funded by the County (ie County Assistance Road System, CARS).	3	Medium	Medium	Low	Years 3-5	Multiple Johnson County Departments
	Develop guidance document and distribute to cities with example incentives and ordinance language for building codes and construction projects to include fast track permitting, buy-recycled (first choice) programs, green building and LEED ordinances, and mandatory C&D recycling.	3	High	Medium	Medium	Years 3-5	JCDHE, Consultant
	Recommendation #2: Continue education and outreach on existing or future diversion options.						
	Develop targeted marketing campaigns on existing diversion options such as Habitat for Humanity ReStore.	5	Low	Low	Low	Years 4-5	JCDHE
	Seek opportunities to market recyclable C&D materials at a regional level.	5	Low	Low	Low	Years 4-5	JCDHE, Private Industry
Organics	Recommendation #1: Encourage food waste diversion at large generators.						
	Though the green busniness program and using efforts from SMSD as a model, assist large generators in developing food waste diversion programs.	2	Medium	Medium	Medium	Years 2-5	JCDHE, Business Partners
	Seek opportunities to develop pilot programs for food waste composting utilizing existing infrastructure.	2	Medium	Medium	Low	Years 4-5	JCDHE, Private Industry, Business Partners
	Recommendation #2: Encourage residential source reduction and diversion.						
	Develop targeted marketing campaigns on appropriate purchasing, backyard composting, and food donations.	5	Low	Low	Low	Years 4-5	JCDHE
	Coordinate efforts with the Johnson County Food Policy Council and promotion of savethefood.com.	5	Low	Low	Low	Years 1-5	JCDHE, Johnson County Food Policy Council
HHW	Recommendation #1: Explore options to cost-share existing and future operations with cities within the County.						
	Consider a County-wide approach to HHW management, which would involve a centralized facility and partnerships with multiple municipalities.	1	Low	High	High	Years 1-2	JCDHE, Consultant
	Recommendation #2: Encourage the reduction or elimination of single-use plastic bags.						
	Develop targeted campaign to provide public education on single-use plastic bag recycling opportunities and reducing the use of single-use plastic bags.	2	Low	Low	Low	Years 1-3	JCDHE
	Conduct a feasibility study on the elimination of single-use plastic bags in Johnson County through taxes, fees, a ban, etc.	2	n/a	Medium	Medium	Years 3-5	JCDHE, Consultant
Recommendation #3: Continue education of source reduction and reuse and importance of recycling of hard to manage materials.							
	Market existing resources such as recyclespot.org. and HHW facilities.	5	Low	Low	Low	Years 1-5	JCDHE

	Action Items	Priority	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
County Operations	Recommendation #1: Encourage continued stakeholder engagement for successful solid waste management plan implementation.						
	Encourage municipalities to develop independent Environmental Committees and invite committee members to SWMC meetings and other strategic discussions.	4	Low	Low	Low	Years 1-5	JCDHE, SWMC, Municipalities
	Encourage participation from other solid waste haulers, processors, and disposal facility personnel in the SWMC and at other strategic discussions.	4	Low	Low	Low	Year 1-5	JCDHE, SWMC, Private Industry
	Recommendation #2: Support development of Sustainability Plan						
	Support the development of a sustainability plan by the Sustainability Committee and JCDHE staff.	TBD	TBD	TBD	TBD	TBD	TBD
	Support the implementation of a sustainability plan by the Sustainability Committee and JCDHE staff.	TBD	TBD	TBD	TBD	TBD	TBD

Priority	Sector	Action Items	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
1	Facilities	Recommendation #1: Design and construct a new HHW building and/or portable drop-off options.					
	Facilities	Develop conceptual plan for new HHW building or expansion to an existing facility, and optional portable drop-off locations.	n/a	Medium	Medium	Years 1-2	JCDHE, Consultant
	Facilities	Site, design, and construct new HHW building or expansion to an existing facility.	Medium	High	High	Years 2-3	JCDHE, Consultant
	Commercial	Recommendation #1: Promote consistency and oversight over the commercial haulers operating in Johnson County.					
	Commercial	Develop implementation plan, ordinance, and phasing plan for universal provision of services for commercial haulers.	n/a	Medium	Medium	Year 1	JCDHE, Consultant
	Commercial	Conduct stakeholder engagement and public education pertaining to changes in the commercial solid waste management collection system.	n/a	Medium	Low	Years 1-5	JCDHE, Consultant
	Commercial	Implement ordinance that requires haulers to become licensed through County and report the amount of refuse, recyclables, and/or organics collected on an annual basis.	n/a	High	Low	Years 3-4	JCDHE
	Commercial	Implement ordinance that requires haulers to provide recycling and/or organics along with refuse collection services for their customers.	High	High	Low	Years 3-4	JCDHE
	HHW	Recommendation #1: Explore options to cost-share existing and future operations with cities within the County.					
	HHW	Consider a County-wide approach to HHW management, which would involve a centralized facility and partnerships with multiple municipalities.	Low	High	High	Years 1-2	JCDHE, Consultant

Priority	Sector	Action Items	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
2	Facilities	Recommendation #2: Evaluate infrastructure needs for organics management.					
	Facilities	Continue to monitor capacity of existing organics processing facilities.	n/a	Low	Low	Years 1-5	JCDHE
	Facilities	Closely track quantities of organic materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for large scale food waste composting.	Medium	Medium	Low	Years 3-5	JCDHE, Private Industry
	Facilities	Recommendation #3: Continue to evaluate long-term municipal solid waste infrastructure needs.					
	Facilities	Continue to monitor remaining life in Johnson County Landfill.	n/a	Low	Low	Years 1-5	JCDHE
	Facilities	Conduct a feasibility study on the siting and development of a new landfill and/or transfer station(s) via a public private partnership.	n/a	Medium	Medium	Years 2-5	JCDHE, Consultant
	Single-Family Residential	Recommendation #1: Increase diversion and reduce contamination.					
	Single-Family Residential	Continue participation, composition, and contamination studies to track effectiveness of educational outreach.	n/a	Medium	Low	Years 1-5	JCDHE
	Single-Family Residential	Perform an analysis of the quantity and quality of materials in the County's recycling systems and develop a County-wide public educational campaign focused on increasing recycling participation and decreasing contamination.	Medium	High	Medium	Years 2-3	JCDHE, Consultant
	Organics	Recommendation #1: Encourage food waste diversion at large generators.					
	Organics	Though the green busniness program and using efforts from SMSD as a model, assist large generators in developing food waste diversion programs.	Medium	Medium	Medium	Years 2-5	JCDHE, Business Partners
	Organics	Seek opportunities to develop pilot programs for food waste composting utilizing existing infrastructure.	Medium	Medium	Low	Years 4-5	JCDHE, Private Industry, Business Partners
	HHW	Recommendation #2: Encourage the reduction or elimination of single-use plastic bags.					
	HHW	Develop targeted campaign to provide public education on single-use plastic bag recycling opportunities and reducing the use of single-use plastic bags.	Low	Low	Low	Years 1-3	JCDHE
HHW	Conduct a feasibility study on the elimination of single-use plastic bags in Johnson County through taxes, fees, a ban, etc.	n/a	Medium	Medium	Years 3-5	JCDHE, Consultant	

Priority	Sector	Action Items	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
3	Multifamily Residential	Recommendation #1: Support cities and private developers in planning and troubleshooting recycling in multifamily residential complexes.					
	Multifamily Residential	Develop guidance document and distribute to cities with example ordinance language for multifamily residential development pertaining to providing convenient recycling, necessary container sizing, and appropriate enclosures for recycling infrastructure.	Medium	Medium	Medium	Years 3-5	JCDHE, Consultant
	Multifamily Residential	Provide technical support to multifamily residential complexes through the green business program, particularly as the universal provision of services is implemented.	Medium	Low	Low	Years 3-5	JCDHE, Cities, Private Industry
	Commercial	Recommendation #2: Continue the Green Business Program, focused on supporting the phasing in of the commercial universal provision of services.					
	Commercial	Target green business program partners associated with the phasing plan developed for the universal provision of services - larger commercial entities to small businesses.	High	Medium	Low	Years 1-5	JCDHE, Business Partners
	C&D	Recommendation #1: Encourage government incentives and regulations to decrease generation and increase diversion of construction & demolition waste.					
	C&D	Modify County regulations to require recycled material (ie. crushed concrete) used on all applicable County projects or projects funded by the County (ie County Assistance Road System, CARS).	Medium	Medium	Low	Years 3-5	Multiple Johnson County Departments
C&D	Develop guidance document and distribute to cities with example incentives and ordinance language for building codes and construction projects to include fast track permitting, buy-recycled (first choice) programs, green building and LEED ordinances, and mandatory C&D recycling.	High	Medium	Medium	Years 3-5	JCDHE, Consultant	
4	Facilities	Recommendation #4: Evaluate infrastructure needs for disposal and recycling of construction & demolition waste.					
	Facilities	Continue to monitor remaining capacity of existing C&D landfills.	n/a	Low	Low	Years 1-5	JCDHE
	Facilities	Encourage private development of a regional C&D MRF.	Medium	Low	Low	Years 3-5	JCDHE, Private Industry
	Facilities	Recommendation #5: Evaluate infrastructure needs for recycling processing facilities.					
	Facilities	Continue to monitor capacity of existing MRFs.	n/a	Low	Low	Years 1-5	JCDHE
	Facilities	Closely track quantities of recycled materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for recycling processing.	Medium	Medium	Low	Years 1-5	JCDHE, Private Industry
	County Operations	Recommendation #1: Encourage continued stakeholder engagement for successful solid waste management plan implementation.					
County Operations	Encourage municipalities to develop independent Environmental Committees and invite committee members to SWMC meetings and other strategic discussions.	Low	Low	Low	Years 1-5	JCDHE, SWMC, Municipalities	
County Operations	Encourage participation from other solid waste haulers, processors, and disposal facility personnel in the SWMC and at other strategic discussions.	Low	Low	Low	Year 1-5	JCDHE, SWMC, Private Industry	

Priority	Sector	Action Items	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
5	Single-Family Residential	Recommendation #2: Provide technical assistance for refuse and recycling cart size selection.					
	Single-Family Residential	Advise residents on cart size selection through public education and requests.	Medium	Low	Low	Years 1-5	JCDHE, Cities, Private Industry
	Single-Family Residential	Recommendation #3: Continue standardization of services and encourage cooperative contracting.					
	Single-Family Residential	Develop standard list of acceptable recyclable materials for collection in coordination with processing facilities and MARC.	Low	Low	Low	Years 1-3	JCDHE, MARC, Private Industry
	Single-Family Residential	Develop standard contract to be made available to HOA's, cities, etc. for hauling, processing, and disposal.	Low	Medium	Medium	Years 3-5	JCDHE, Consultant
	C&D	Recommendation #2: Continue education and outreach on existing or future diversion options.					
	C&D	Develop targeted marketing campaigns on existing diversion options such as Habitat for Humanity ReStore.	Low	Low	Low	Years 4-5	JCDHE
	C&D	Seek opportunities to market recyclable C&D materials at a regional level.	Low	Low	Low	Years 4-5	JCDHE, Private Industry
	Organics	Recommendation #2: Encourage residential source reduction and diversion.					
	Organics	Develop targeted marketing campaigns on appropriate purchasing, backyard composting, and food donations.	Low	Low	Low	Years 4-5	JCDHE
	Organics	Coordinate efforts with the Johnson County Food Policy Council and promotion of savethefood.com.	Low	Low	Low	Years 1-5	JCDHE, Johnson County Food Policy Council
HHW	Recommendation #3: Continue education of source reduction and reuse and importance of recycling of hard to manage materials.						
HHW	Market existing resources such as recyclespot.org. and HHW facilities.	Low	Low	Low	Years 1-5	JCDHE	
TBD	County Operations	Recommendation #2: Support development of Sustainability Plan					
	County Operations	Support the development of a sustainability plan by the Sustainability Committee and JCDHE staff.	TBD	TBD	TBD	TBD	TBD
	County Operations	Support the implementation of a sustainability plan by the Sustainability Committee and JCDHE staff.	TBD	TBD	TBD	TBD	TBD

Action Items	Priority	Completed	Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Recommendation #1: Design and construct a new HHW building and/or portable drop-off options.							
Develop conceptual plan for new HHW building or expansion to an existing facility, and optional portable drop-off locations.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Medium	Medium	Years 1-2	JCDHE, Consultant
Site, design, and construct new HHW building or expansion to an existing facility.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	High	High	Years 2-3	JCDHE, Consultant
Recommendation #2: Evaluate infrastructure needs for organics management.							
Continue to monitor capacity of existing organics processing facilities.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Low	Low	Years 1-5	JCDHE
Closely track quantities of organic materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for large scale food waste composting.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Medium	Low	Years 3-5	JCDHE, Private Industry
Recommendation #3: Continue to evaluate long-term municipal solid waste infrastructure needs.							
Continue to monitor remaining life in Johnson County Landfill.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Low	Low	Years 1-5	JCDHE
Conduct a feasibility study on the siting and development of a new landfill and/or transfer station(s) via a public private partnership.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Medium	Medium	Years 2-5	JCDHE, Consultant
Recommendation #4: Evaluate infrastructure needs for disposal and recycling of construction & demolition waste.							
Continue to monitor remaining capacity of existing C&D landfills.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Low	Low	Years 1-5	JCDHE
Encourage private development of a regional C&D MRF.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Low	Low	Years 3-5	JCDHE, Private Industry
Recommendation #5: Evaluate infrastructure needs for recycling processing facilities.							
Continue to monitor capacity of existing MRFs.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Low	Low	Years 1-5	JCDHE
Closely track quantities of recycled materials generated within the County to identify potential opportunities for the development of infrastructure via public-private partnerships for recycling processing.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Medium	Low	Years 1-5	JCDHE, Private Industry

Facilities

	Action Items	Priority		Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party	
Single-Family Residential	Recommendation #1: Increase diversion and reduce contamination.								
	Continue participation, composition, and contamination studies to track effectiveness of educational outreach.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Medium	Low	Years 1-5	JCDHE	
	Perform an analysis of the quantity and quality of materials in the County's recycling systems and develop a County-wide public educational campaign focused on increasing recycling participation and decreasing contamination.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	High	Medium	Years 2-3	JCDHE, Consultant	
	Recommendation #2: Provide technical assistance for refuse and recycling cart size selection.								
	Advise residents on cart size selection through public education and requests.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Low	Low	Years 1-5	JCDHE, Cities, Private Industry	
	Recommendation #3: Continue standardization of services and encourage cooperative contracting.								
Develop standard list of acceptable recyclable materials for collection in coordination with processing facilities and MARC.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 1-3	JCDHE, MARC, Private Industry		
Develop standard contract to be made available to HOA's, cities, etc. for hauling, processing, and disposal.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Medium	Medium	Years 3-5	JCDHE, Consultant		
Multifamily Residential	Recommendation #1: Support cities and private developers in planning and troubleshooting recycling in multifamily residential complexes.								
	Develop guidance document and distribute to cities with example ordinance language for multifamily residential development pertaining to providing convenient recycling, necessary container sizing, and appropriate enclosures for recycling infrastructure.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Medium	Medium	Years 3-5	JCDHE, Consultant	
	Provide technical support to multifamily residential complexes through the green business program, particularly as the universal provision of services is implemented.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Low	Low	Years 3-5	JCDHE, Cities, Private Industry	
Commercial	Recommendation #1: Promote consistency and oversight over the commercial haulers operating in Johnson County.								
	Develop implementation plan, ordinance, and phasing plan for universal provision of services for commercial haulers.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Medium	Medium	Year 1	JCDHE, Consultant	
	Conduct stakeholder engagement and public education pertaining to changes in the commercial solid waste management collection system.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Medium	Low	Years 1-5	JCDHE, Consultant	
	Implement ordinance that requires haulers to become licensed through County and report the amount of refuse, recyclables, and/or organics collected on an annual basis.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	High	Low	Years 3-4	JCDHE	
	Implement ordinance that requires haulers to provide recycling and/or organics along with refuse collection services for their customers.		<input type="checkbox"/> Yes <input type="checkbox"/> No	High	High	Low	Years 3-4	JCDHE	
Recommendation #2: Continue the Green Business Program, focused on supporting the phasing in of the commercial universal provision of services.									
	Target green business program partners associated with the phasing plan developed for the universal provision of services - larger commercial entities to small businesses.		<input type="checkbox"/> Yes <input type="checkbox"/> No	High	Medium	Low	Years 1-5	JCDHE, Business Partners	

	Action Items	Priority		Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party	
C&D	Recommendation #1: Encourage government incentives and regulations to decrease generation and increase diversion of construction & demolition waste.								
	Modify County regulations to require recycled material (ie. crushed concrete) used on all applicable County projects or projects funded by the County (ie County Assistance Road System, CARS).		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Medium	Low	Years 3-5	Multiple Johnson County Departments	
	Develop guidance document and distribute to cities with example incentives and ordinance language for building codes and construction projects to include fast track permitting, buy-recycled (first choice) programs, green building and LEED ordinances, and mandatory C&D recycling.		<input type="checkbox"/> Yes <input type="checkbox"/> No	High	Medium	Medium	Years 3-5	JCDHE, Consultant	
	Recommendation #2: Continue education and outreach on existing or future diversion options.								
	Develop targeted marketing campaigns on existing diversion options such as Habitat for Humanity ReStore.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 4-5	JCDHE	
	Seek opportunities to market recyclable C&D materials at a regional level.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 4-5	JCDHE, Private Industry	
Organics	Recommendation #1: Encourage food waste diversion at large generators.								
	Though the green businness program and using efforts from SMSD as a model, assist large generators in developing food waste diversion programs.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Medium	Medium	Years 2-5	JCDHE, Business Partners	
	Seek opportunities to develop pilot programs for food waste composting utilizing existing infrastructure.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Medium	Medium	Low	Years 4-5	JCDHE, Private Industry, Business Partners	
	Recommendation #2: Encourage residential source reduction and diversion.								
	Develop targeted marketing campaigns on appropriate purchasing, backyard composting, and food donations.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 4-5	JCDHE	
	Coordinate efforts with the Johnson County Food Policy Council and promotion of savethefood.com.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 1-5	JCDHE, Johnson County Food Policy Council	
HHW	Recommendation #1: Explore options to cost-share existing and future operations with cities within the County.								
	Consider a County-wide approach to HHW management, which would involve a centralized facility and partnerships with multiple municipalities.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	High	High	Years 1-2	JCDHE, Consultant	
	Recommendation #2: Encourage the reduction or elimination of single-use plastic bags.								
	Develop targeted campaign to provide public education on single-use plastic bag recycling opportunities and reducing the use of single-use plastic bags.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 1-3	JCDHE	
	Conduct a feasibility study on the elimination of single-use plastic bags in Johnson County through taxes, fees, a ban, etc.		<input type="checkbox"/> Yes <input type="checkbox"/> No	n/a	Medium	Medium	Years 3-5	JCDHE, Consultant	
Recommendation #3: Continue education of source reduction and reuse and importance of recycling of hard to manage materials.									
	Market existing resources such as recyclespot.org. and HHW facilities.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 1-5	JCDHE	

Action Items	Priority		Increased Diversion Potential	Difficulty of Implementation	Financial Impact	Implementation Timing	Responsible Party
Recommendation #1: Encourage continued stakeholder engagement for successful solid waste management plan implementation.							
Encourage municipalities to develop independent Environmental Committees and invite committee members to SWMC meetings and other strategic discussions.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Years 1-5	JCDHE, SWMC, Municipalities
Encourage participation from other solid waste haulers, processors, and disposal facility personnel in the SWMC and at other strategic discussions.		<input type="checkbox"/> Yes <input type="checkbox"/> No	Low	Low	Low	Year 1-5	JCDHE, SWMC, Private Industry
Recommendation #2: Support development of Sustainability Plan							
Support the development of a sustainability plan by the Sustainability Committee and JCDHE staff.		<input type="checkbox"/> Yes <input type="checkbox"/> No	TBD	TBD	TBD	TBD	TBD
Support the implementation of a sustainability plan by the Sustainability Committee and JCDHE staff.		<input type="checkbox"/> Yes <input type="checkbox"/> No	TBD	TBD	TBD	TBD	TBD

APPENDIX C – STAKEHOLDER ENGAGEMENT DATA

The title of the report, 'SOLID WASTE MANAGEMENT PLAN SURVEY RESULTS', is displayed in a large, bold, blue, sans-serif font. The text is centered and overlaid on a background of large, stacked bales of compressed waste. A large, semi-transparent white arrow graphic points from the top-left towards the bottom-right, passing behind the title text.

SOLID WASTE MANAGEMENT PLAN SURVEY RESULTS

**JOHNSON COUNTY
DEPARTMENT OF HEALTH
AND ENVIRONMENT**

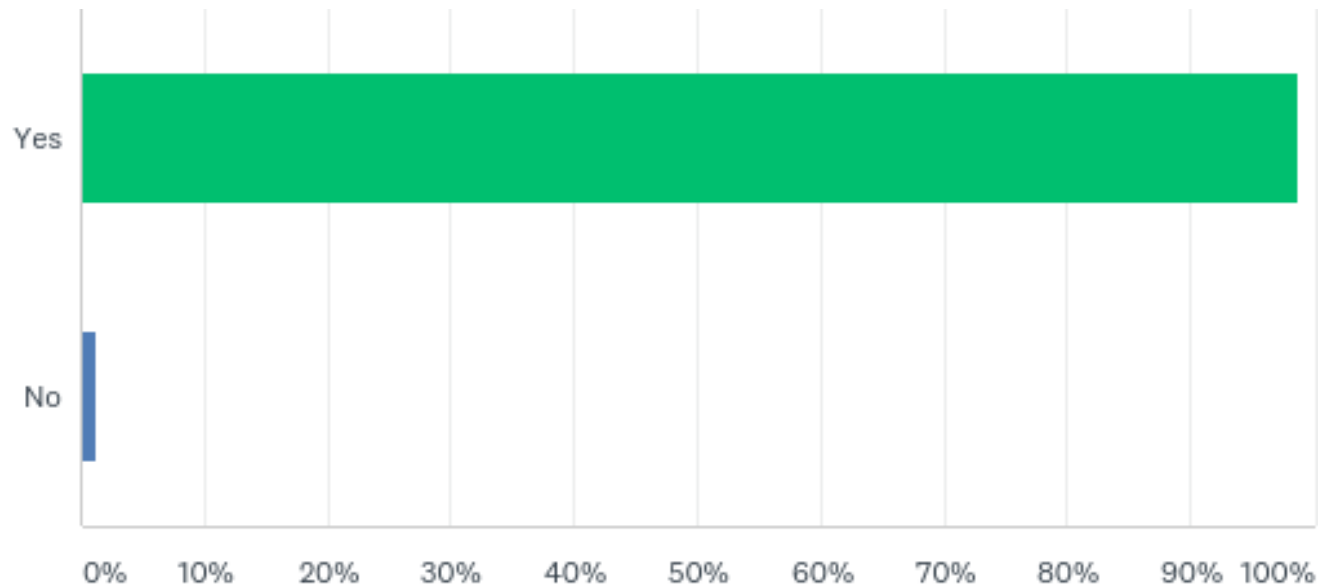
May 8, 2019

SURVEY SUMMARY

- ▶ Available April 3 – May 6, 2019
- ▶ 1085 Total responses
- ▶ 1040 completed responses
- ▶ Responses from almost every county township
- ▶ Generally positive feedback
- ▶ Respondents are generally supportive of all efforts

Q1: Are you a Johnson County Resident?

▶ Answered: 1,075 Skipped: 10



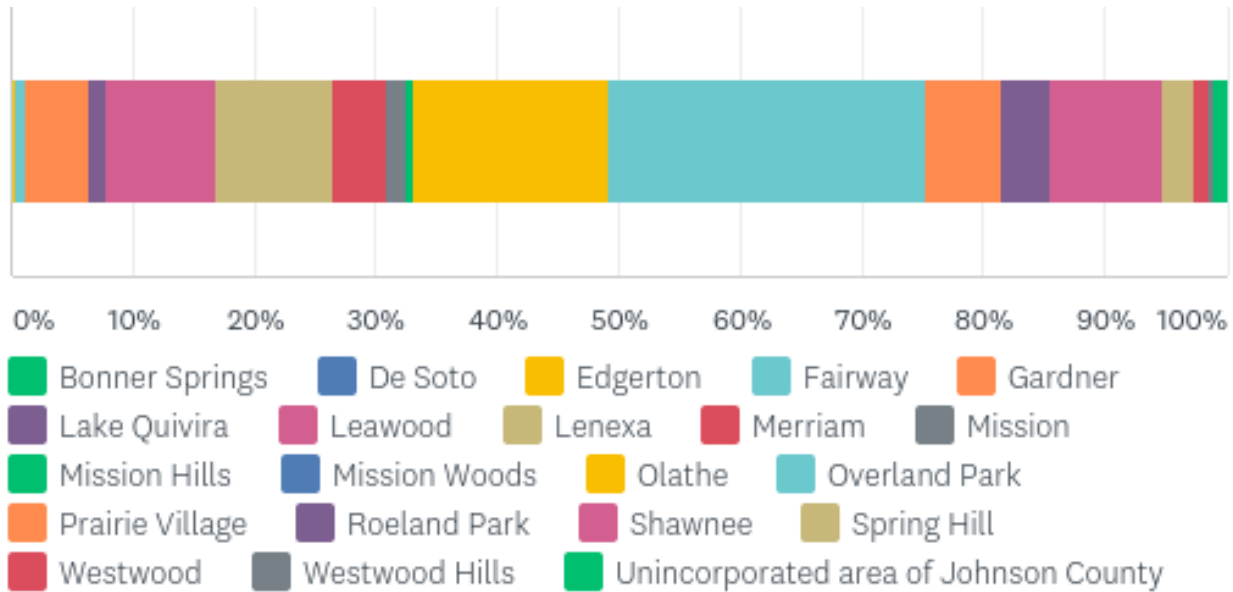
Q1: Are you a Johnson County Resident?

▶ Answered: 1,075 Skipped: 10

ANSWER CHOICES	RESPONSES	
Yes	98.70%	1,061
No	1.30%	14
TOTAL		1,075

Q2: Which city are you living?

▶ Answered: 1,080 Skipped: 5



Q2: Which city are you living?

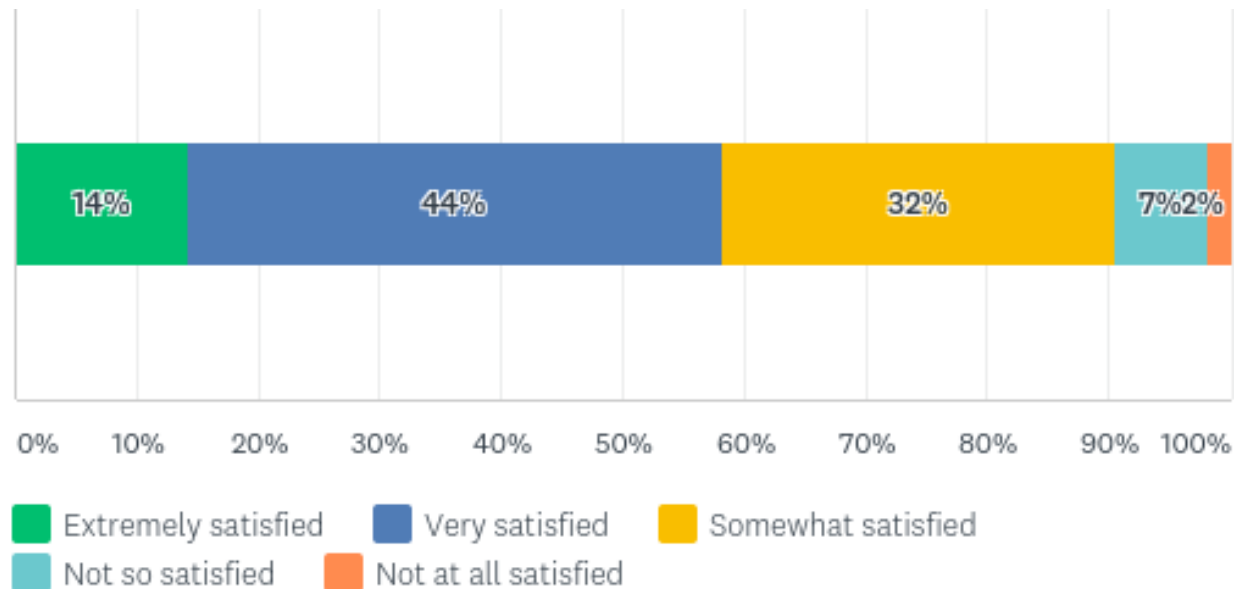
▶ Answered: 1,080

▶ Skipped: 5

ANSWER CHOICES	RESPONSES	
Bonner Springs	0.00%	0
De Soto	0.28%	3
Edgerton	0.09%	1
Fairway	0.83%	9
Gardner	5.28%	57
Lake Quivira	1.30%	14
Leawood	9.07%	98
Lenexa	9.63%	104
Merriam	4.54%	49
Mission	1.57%	17
Mission Hills	0.46%	5
Mission Woods	0.00%	0
Olathe	16.20%	175
Overland Park	26.02%	281
Prairie Village	6.20%	67
Roeland Park	4.07%	44
Shawnee	9.17%	99
Spring Hill	2.59%	28
Westwood	1.20%	13
Westwood Hills	0.56%	6
Unincorporated area of Johnson County	0.93%	10
TOTAL		1,080

Q3: How satisfied are you with your household's current trash, recycling, and yard waste collection service?

▶ Answered: 1,081 Skipped: 4



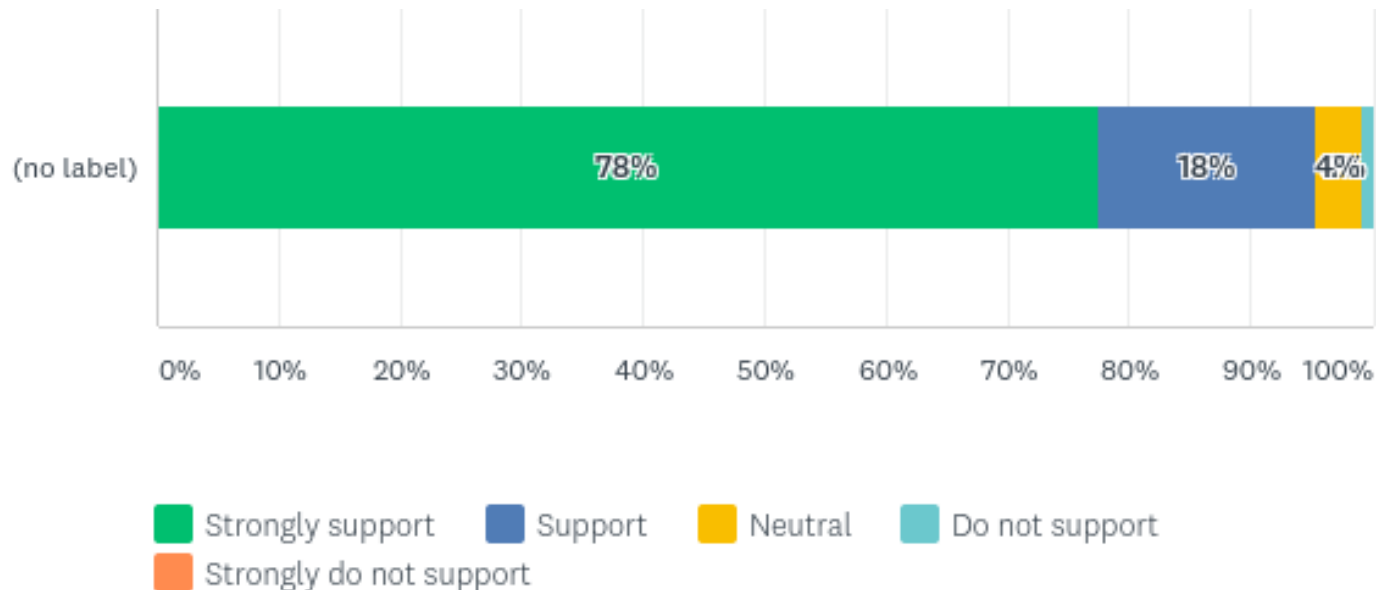
Q3: How satisfied are you with your household's current trash, recycling, and yard waste collection service?

► Answered: 1,081 Skipped: 4

ANSWER CHOICES	RESPONSES	
Extremely satisfied	14%	154
Very satisfied	44%	476
Somewhat satisfied	32%	350
Not so satisfied	7%	81
Not at all satisfied	2%	20
TOTAL		1,081

Q4: Do you support Johnson County's continued effort in education and public outreach toward recycling and trash reduction?

▶ Answered: 1,062 Skipped: 23



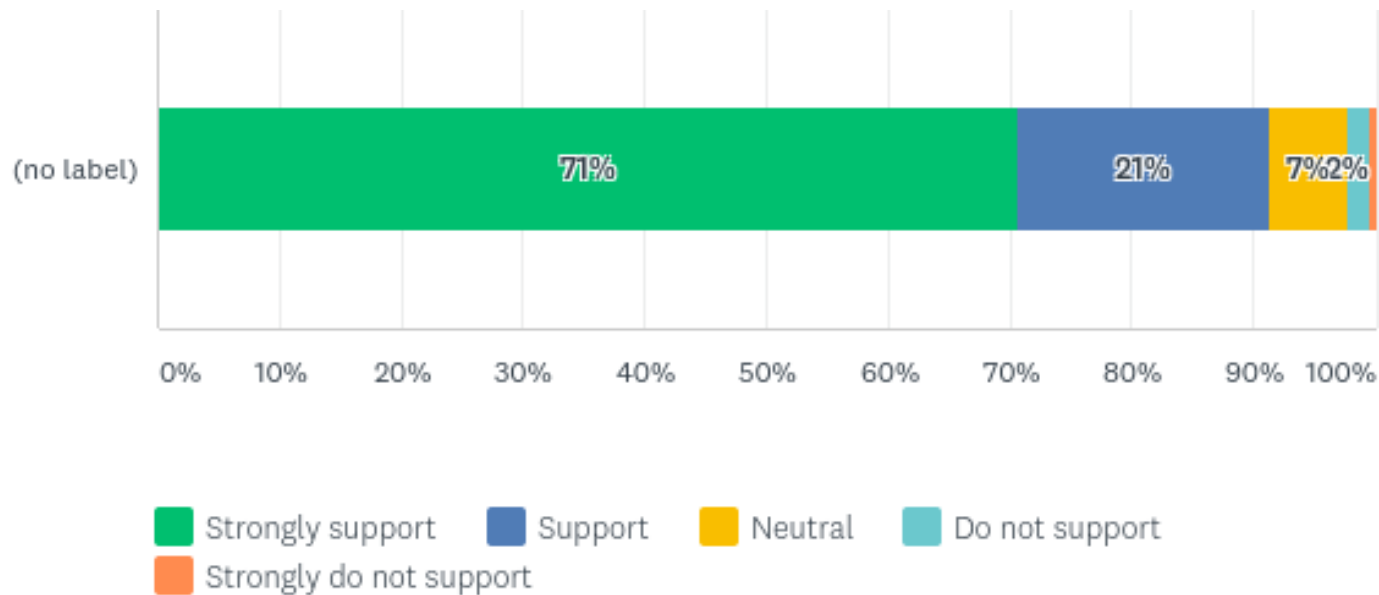
Q4: Do you support Johnson County's continued effort in education and public outreach toward recycling and trash reduction?

▶ Answered: 1,062 Skipped: 23

	STRONGLY SUPPORT	SUPPORT	NEUTRAL	DO NOT SUPPORT	STRONGLY DO NOT SUPPORT	TOTAL	WEIGHTED AVERAGE
(no label)	78% 824	18% 190	4% 39	1% 8	0% 1	1,062	1.28

Q5: Johnson County has significantly increased the residential recycling rate through regulations (licensing of residential haulers to include recycling and yard waste services). To what extent do you support a similar strategy to increase recycling rate in the commercial sector?

▶ Answered: 1,061 Skipped: 24



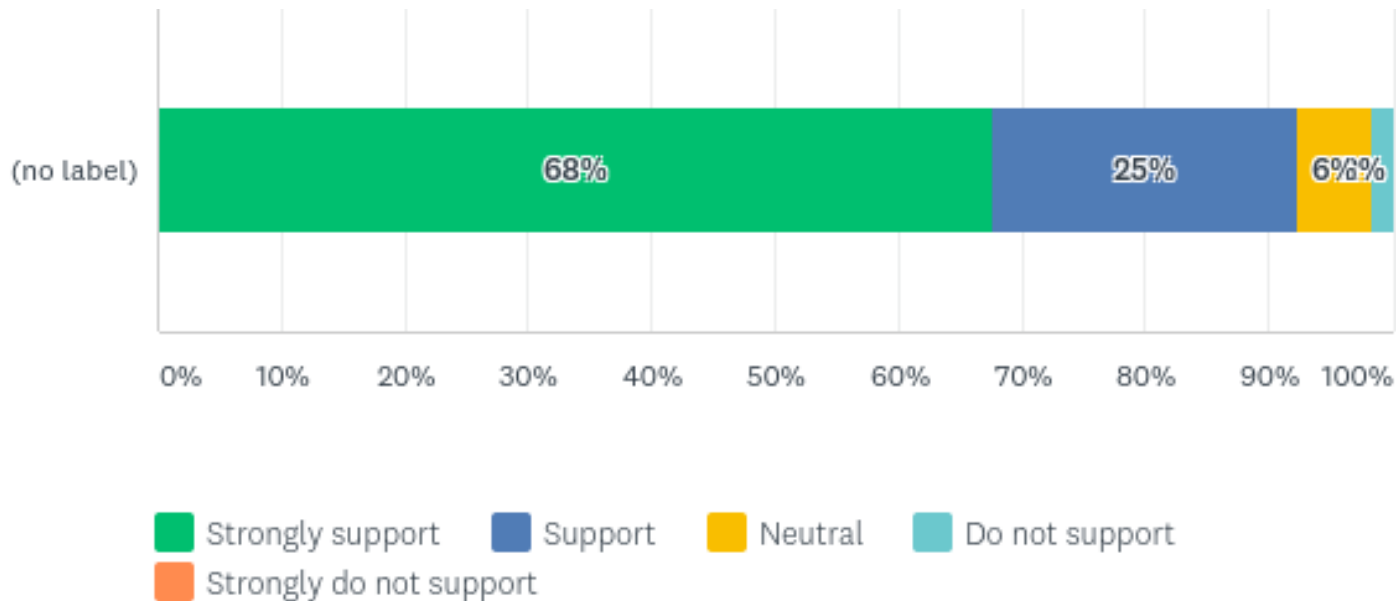
Q5: Johnson County has significantly increased the residential recycling rate through regulations (licensing of residential haulers to include recycling and yard waste services). To what extent do you support a similar strategy to increase recycling rate in the commercial sector?

► Answered: 1,061 Skipped: 24

	STRONGLY SUPPORT	SUPPORT	NEUTRAL	DO NOT SUPPORT	STRONGLY DO NOT SUPPORT	TOTAL	WEIGHTED AVERAGE
(no label)	71% 749	21% 220	7% 69	2% 19	0% 4	1,061	1.41

Q6: Johnson County has supported businesses through its Green Business Program which offered assistance in reducing environmental impacts through equipment purchases for recycling and reducing waste. To what extent do you support the continuation of this Program, with a focus on large waste generators within Johnson County.

▶ Answered: 1,060 Skipped: 25



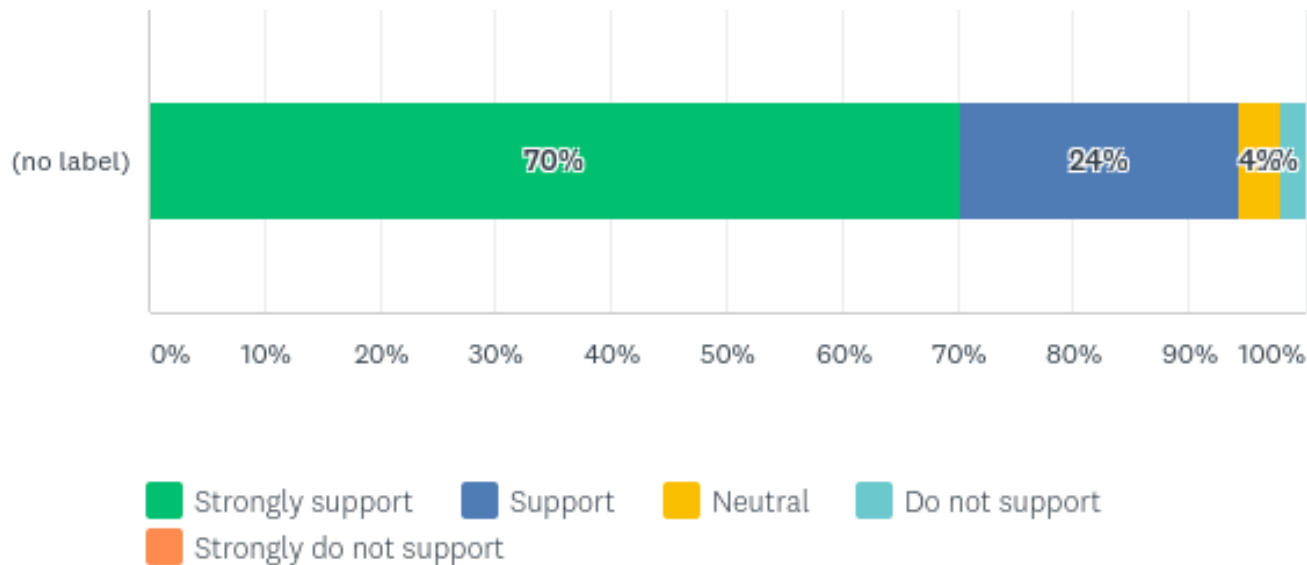
Q6: Johnson County has supported businesses through its Green Business Program which offered assistance in reducing environmental impacts through equipment purchases for recycling and reducing waste. To what extent do you support the continuation of this Program, with a focus on large waste generators within Johnson County.

► Answered: 1,060 Skipped: 25

	STRONGLY SUPPORT	SUPPORT	NEUTRAL	DO NOT SUPPORT	STRONGLY DO NOT SUPPORT	TOTAL	WEIGHTED AVERAGE
(no label)	68% 717	25% 262	6% 63	2% 17	0% 1	1,060	1.42

Q7: Infrastructure for recycling and disposal is limited in capacity. To what extent do you support the County in taking a more active role in evaluating infrastructure and development of facilities, public and private (food waste composting, recycling, future landfills)?

► Answered: 1,032 Skipped: 53



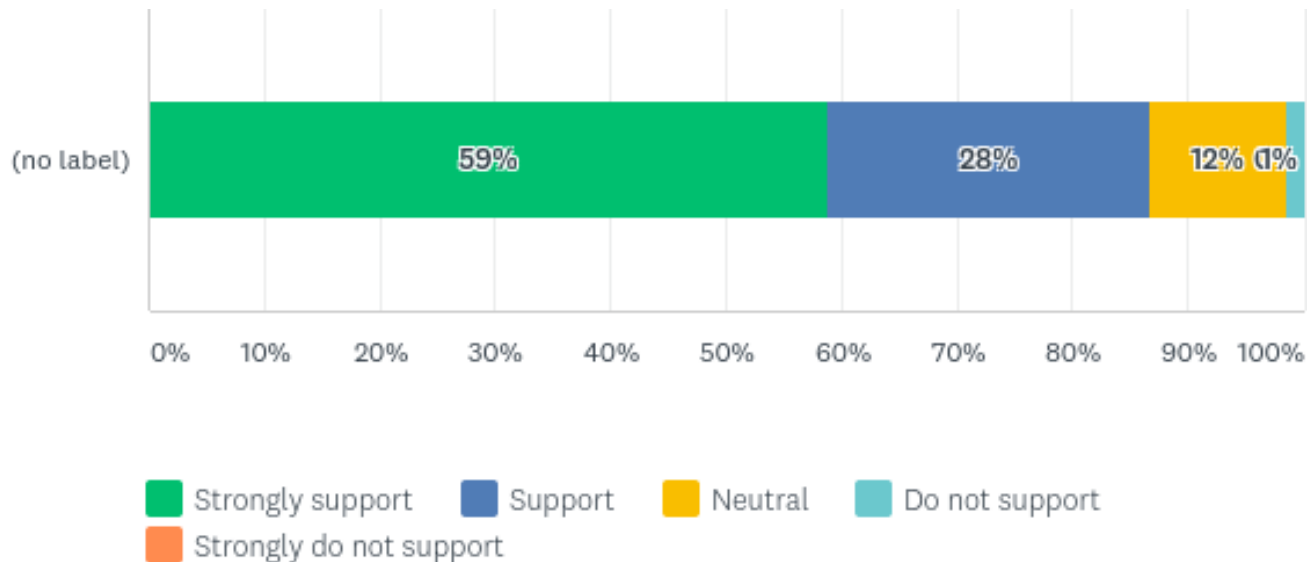
Q7: Infrastructure for recycling and disposal is limited in capacity. To what extent do you support the County in taking a more active role in evaluating infrastructure and development of facilities, public and private (food waste composting, recycling, future landfills)?

► Answered: 1,032 Skipped: 53

	STRONGLY SUPPORT	SUPPORT	NEUTRAL	DO NOT SUPPORT	STRONGLY DO NOT SUPPORT	TOTAL	WEIGHTED AVERAGE
(no label)	70% 726	24% 248	4% 37	2% 21	0% 0	1,032	1.37

Q8: Johnson County operates a Household Hazardous Waste collection facility (for paint and household chemicals). Drop offs are by appointment year round, three days a week. To what extent do you support Johnson County in increasing access, hours and locations?

► Answered: 1,033 Skipped: 52



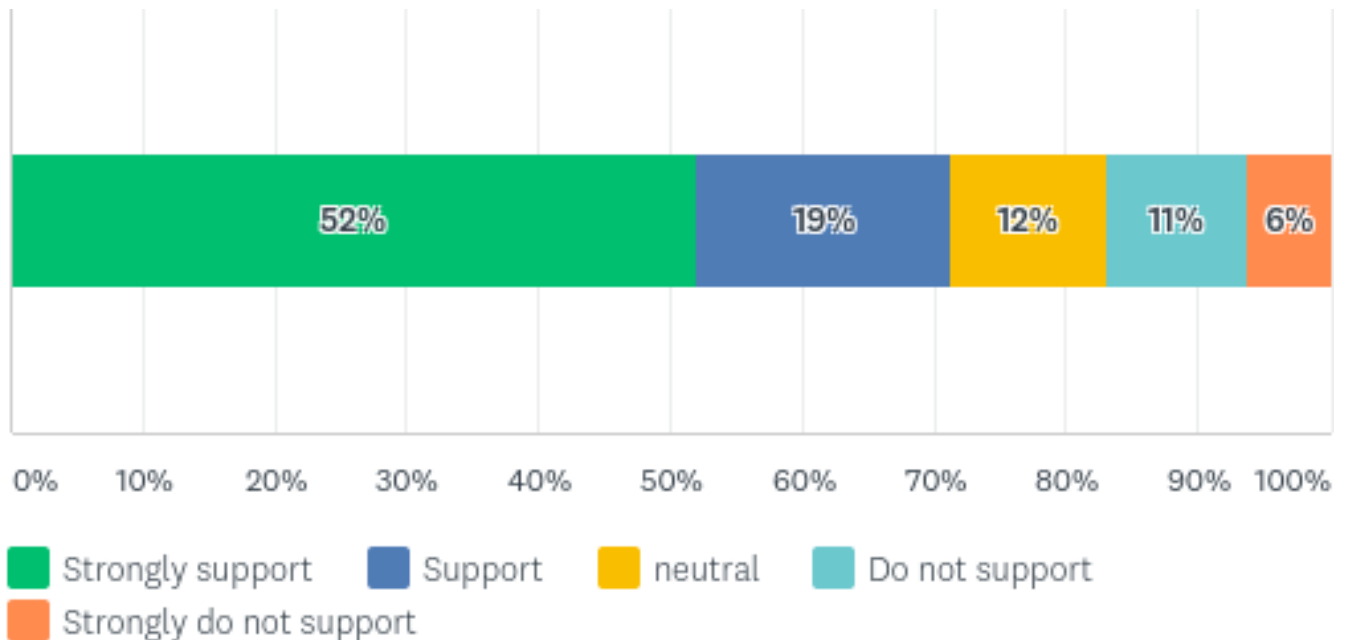
Q8: Johnson County operates a Household Hazardous Waste collection facility (for paint and household chemicals). Drop offs are by appointment year round, three days a week. To what extent do you support Johnson County in increasing access, hours and locations?

▶ Answered: 1,033 Skipped: 52

	STRONGLY SUPPORT	SUPPORT	NEUTRAL	DO NOT SUPPORT	STRONGLY DO NOT SUPPORT	TOTAL	WEIGHTED AVERAGE
(no label)	59% 607	28% 289	12% 123	1% 13	0% 1	1,033	1.56

Q9: Would you support a 'Ban the Bag' effort to eliminate the use of plastic bags in Johnson County through bag fees?

▶ Answered: 1,035 Skipped: 50



Q9: Would you support a 'Ban the Bag' effort to eliminate the use of plastic bags in Johnson County through bag fees?

► Answered: 1,035 Skipped: 50

ANSWER CHOICES	RESPONSES	
Strongly support	52%	538
Support	19%	199
neutral	12%	123
Do not support	11%	111
Strongly do not support	6%	64
TOTAL		1,035

APPENDIX D – LOCAL CODES AND ORDINANCES

APPENDIX D – LOCAL CODES AND ORDINANCES

1.0 JOHNSON COUNTY MUNICIPAL SOLID WASTE CODES AND REGULATIONS

1.1 City Bonner Springs

The City provides residential trash (solid waste) and recycle services through an agreement with the Unified Government of Wyandotte County and Kansas City, Kansas who contracts with Waste Management for curbside services. The City bills residents for this service on their monthly utility bill. Residential trash and recycle service is mandatory and residents are billed whether they use the service or not.

1.2 City of De Soto

The solid waste regulations for De Soto are in Chapter 15, Article 4, of its city codes and ordinances. There are 20 regulations pertaining to solid waste. The most recent revision to these codes and ordinances were made in 2009. The regulations cover the types of containers that may be used to store solid waste prior to collection, collection requirements, collection vehicles, licensing requirements for collectors, bulky waste, hazardous waste, and prohibited acts. Screening requirements for trash receptacles must be on at least three sides with a solid fence enclosure.

1.3 City of Edgerton

The solid waste regulations for Edgerton, revised in 2011, are in Chapter 8, Article 5, of its city codes and ordinances. There are 24 regulations that pertain to solid waste. The regulations cover the types of containers that may be used to store solid waste prior to collection, collection requirements prohibited acts such as dumping or littering, and enforcement. Storage bin screening requirements for multi-family and commercial establishments are also included in the solid waste regulations.

1.4 City of Fairway

The solid waste regulations for Fairway are in Chapter 12, Articles 1, 2, and 3 of its city codes and ordinances. There are 37 regulations that pertain to solid waste. The regulations cover the types of containers that may be used to store solid waste prior to collection, collection requirements, licensing requirements for collectors, prohibited acts, nuisances, and enforcement. According to the regulations, “Effective January 2013, the City shall establish a solid waste utility for the collection of residential solid waste recycling and yard waste in all R zoning districts by establishing a City Solid Waste Program and

contracting with a refuse hauler on behalf of residents as deemed to be in the best interests of the City and its residents.”

1.5 City of Gardner

The solid waste regulations for Gardner, current through 2018, are in Chapter 8 of its city codes and ordinances; open burning is addressed in Chapter 9. The solid waste regulations cover the types of containers that may be used to store trash and recyclable materials prior to collection, container requirements for composting, and prohibited acts.

1.6 City of Lake Quivira

Acceptable solid waste equals normal or typical garbage, rubbish, or refuse, and excludes hazardous waste and bulky items such as construction & demolition waste, household appliances, beds, chairs, mattresses, box springs, hot water tanks, washers, dryers, refrigerators, and tubs.

1.7 City of Leawood

The solid waste regulations for Leawood are in Chapter 15, Article 4, and Chapter 8, Articles 2 and 3, of its city codes and ordinances. The most recent revision to chapters 15 and 8 were in 2003. There are 25 regulations that pertain to solid waste. The regulations cover the types of containers that may be used to store solid waste prior to collection, collection requirements, licensing requirements for collectors, anti-scavenger rules, prohibited acts, nuisances, public education, and enforcement.

1.8 City of Lenexa

The solid waste regulations for Lenexa are in Chapter 15, Article 4, and Chapter 8, Articles 2 and 3, of its city codes and ordinances. The most recent revision to chapters 15 and 8 were in 2003. There are 25 regulations that pertain to solid waste. The regulations cover the types of containers that may be used to store solid waste prior to collection, collection requirements, licensing requirements for collectors, anti-scavenger rules, prohibited acts, nuisances, public education, and enforcement.

- An affidavit certifying that the refuse hauler has complied with all requirements and relevant codes,
- The total volume of solid waste, recyclables and yard waste, by type, collected in Lenexa
- The disposal site for each type of refuse collected, and
- Route schedules and maps for each collection route in the City.

The City also required, by January 1, 2013, that each refuse hauler licensed to provide residential solid waste collection must offer at least one bulky item pickup per year. The cost of this pickup should be included in the base service charge.

Additionally, by January 1, 2015, each licensed refuse hauler that provides solid waste collection service to multi-family customers must provide, as a part of its basic service charge, collection of an unlimited volume of recyclables.

1.9 City of Merriam

The solid waste regulations for Merriam are in Chapter 56 of its city codes and ordinances. In July 2014 the City adopted Ordinance No. 1721- Solid Waste regulations. Chapter 18 is the nuisance code. The regulations cover the types of containers that may be used to store solid waste prior to collection, collection requirements, licensing requirements for collectors, composting, yard waste, recycling, anti-scavenger rules, prohibited acts, nuisances, public education, and enforcement.

1.10 City of Mission Hills

The solid waste regulations for Mission Hills are in Chapter 4, Article 1, and Chapter 6, Article 1, of its city codes and ordinances. The most recent revision to these codes and ordinances was made in 2005. There are five regulations that pertain to solid waste. The regulations cover anti-scavenger, rules, littering, nuisances, and open burning. These codes and ordinances do not establish any additional requirements for homeowners or solid waste collectors.

1.11 City of Mission

The solid waste regulations for Mission are in Chapter 235 of its city codes and ordinances. The most recent revision to this chapter of the codes and ordinances was in 2008. There are 34 regulations that pertain to solid waste. The regulations cover the types of containers that may be used to store solid waste prior to collection, collection requirements, licensing requirements for collectors, composting, yard waste, C&D waste, hazardous materials, recycling, prohibited acts, nuisances, public education, and enforcement.

The City specifies that contractors provide polycarts for recyclable materials in residential areas with a minimum capacity of 65 gallons and constructed of not less than 25 percent recycled plastic. Containers for recyclable materials in multi-family dwellings may be bags, bins, or other containers furnished by the contractor and approved by the City.

1.12 City of Mission Woods

The solid waste regulations for Mission Woods are in Chapters 7, 8 and 10 of its city codes and ordinances. A summary of these are included below.

5-706(hh): requires every unit offered for rent to have adequate storage facilities constructed to repel animals for the deposit of garbage bags until the date of pickup.

8-202(e): gives the City authority to levy and collect a license tax of \$50.00 a year for services performed by residential trash companies.

7-115: requires any person with combustible waste materials to properly dispose of it at the end of each business day and provides that it is their duty to make proper arrangements for daily disposal or to install baling or storage units approved by the chief of the fire district.

10-206: requires residents to provide and renew when necessary, a sufficient number of trash cans to hold their trash and the cans must be of "rigid construction with tight-fitting covers and shall be watertight." Such trash cans shall be placed outside the confines of the building in which the trash is produced no earlier than the morning of the day upon which the trash is anticipated to be collected by the regular trash collection service subscribed to by the occupant or provided by the City.

10-207: requires residents to place lawn trimmings, tree and bush trimmings, and any other yard debris in suitable containers. Such containers shall not be placed at or within thirty feet (3 0') of the street curb for more than twenty-four (24) hours prior to the anticipated time of collection.

1.13 City of Olathe

The solid waste regulations for Olathe are in Title 6, Chapter 6.04, of the city Municipal Codes. There are 14 Sections that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, collection vehicles, collection hours, permits and licensing for collectors, responsibilities of home associations, anti-scavenger rules, yard waste, prohibited acts, enforcement, and funding for solid waste management.

1.14 City of Overland Park

The solid waste regulations for Overland Park are in Chapter 7.36 of its city codes and ordinances. The most recent revision to these codes and ordinances was in 2011. There are 37 regulations and definitions that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, collection vehicles, permits and licensing for collectors, responsibilities of home associations, prohibited acts, and enforcement.

The current codes pertaining to yard waste state that all yard waste must be collected at least once per week for a minimum of 40 weeks per year. The charge for yard waste collection should be included in the basic service charge. The hauler may enact a volume base rate structure for yard waste collection above the base collection amount in accordance with the County's solid waste regulations.

1.15 City of Prairie Village

The solid waste regulations for Prairie Village are in Chapter 15, Article 3, of its city codes and ordinances. There are 32 regulations that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, collection vehicles, collection hours, permits and licensing for collectors, responsibilities of home associations, anti-scavenger rules, yard waste, prohibited acts, enforcement, and funding for solid waste management.

1.16 City of Roeland Park

The solid waste regulations for Roeland Park are in Chapter 15, Article 1, of its city codes and ordinances. There are 16 regulations that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, collection, permits and licensing for collectors, composting, public dumpsters, prohibited acts, enforcement, and public education. Ordinance 832 (2009) expanded allowable materials for composting to include pure and raw fruit and vegetable scraps and coffee ground. Unallowable materials include processed foods, meat, poultry, fish, dairy products or grease. Section 15-105(d)

The codes include the following restrictions for residential composting.

- Every residential composting operation shall be contained within a fenced area or enclosed within a container.
- There shall be no more than one composting containment structure on any property.
- Piles of branches, grass clippings, leaves, and other yard waste outside of a composting containment structure shall be considered solid waste. There are allowable exceptions.
- Allowable composting containment structure sizes are defined.
- Location restrictions in relationship to public right-of-way's and property boundaries.

- Approved compostable materials are listed.
- Proper maintenance of composting structures is required to eliminate objectionable odors and to discourage vermin.

1.17 City of Shawnee

The solid waste regulations for Shawnee are in Chapter 8.16 of its city codes and ordinances. The most recent revision to these codes and ordinances was in 2011. There are 12 sections that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, permits and licensing for collectors, recycling container size requirements, final disposal of solid waste, enforcement, recycling, and composting. Open burning is addressed in Chapter 8.20.

The codes include the following restrictions for residential composting.

- Every residential composting operation shall be contained within a fenced area or enclosed within a container.
- There shall be no more than one composting containment structure on any property.
- Piles of branches, grass clippings, leaves, and other yard waste outside of a composting containment structure shall be considered solid waste. There are allowable exceptions.
- Allowable composting containment structure sizes are defined.
- Location restrictions in relationship to public right-of-way's and property boundaries.
- Approved compostable materials are listed.
- Proper maintenance of composting structures is required to eliminate objectionable odors and to discourage vermin.

1.18 City of Spring Hill

The solid waste regulations for Spring Hill are in Chapter 7, Articles 2, 2A, 3 and Ordinance 2009-23 of its city codes and ordinances. The most recent revision to these codes and ordinances was in 2009. There are 35 regulations that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, collection, permits and licensing for collectors, rates, final disposal of solid waste, burning, annual cleanup, and enforcement.

1.19 City of Westwood Hills

The solid waste regulations for Westwood Hills are in Chapter 4, Article 5, and Chapter 10, Article 2, of its city codes and ordinances. There are eight regulations that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, collection hours, yard waste, and enforcement.

1.20 City of Westwood

The solid waste regulations for Westwood are in Chapter 8, Articles 3 and 5, of its city codes and ordinances. The most recent revision to these codes and ordinances was in 2008. There are 15 regulations that pertain to solid waste. The regulations cover the storage of solid waste prior to collection, collection vehicles, prohibited acts, burning, and weight.

APPENDIX E – MENU OF OPTIONS

	Policy or Program	Policy or Program Description	Increased Diversion Potential	Facilities & Infrastructure	Single-Family Residential	Multifamily Residential	Commercial	County Operations	Construction & Demolition	HHW & Special Waste	Johnson County Status	Future Considerations
1	Zero Waste Goal/Plan	Adopt a goal and plan for reaching high (90%) diversion from landfilling and combustion by a specific year through reduce and reuse as well as recycling and organics diversion.	High		X	X	X	X	X	X	Zero waste goal by 2020 in County Operations only. Current efforts at County offices include electronic recycling in all buildings and food waste in Administration building.	Setting an aggressive goal such as this is great for motivation, but additional specific recommendations would need to be developed on how goal would be reached. Many communities have set these goals and have not been successful at achieving them without thorough understanding specific programmatic goals.
2	Zero Waste Goals for Organics	Adopt a Zero Food Waste hierarchy; adopt a goal to phase out organics from refuse collection and from entering local transfer stations landfills or incinerators.	High		X	X	X	X			n/a	Could the Johnson County Food Policy Council (JCPC) may be addressing this. 2019 Plan could provide guidance to the JCPC regarding food waste as an initial step.
3	Landfill Ban - Organics	Adopt an ordinance to limit, then ban organics from refuse collection and from entering local transfer stations and landfills; support adoption regionally and statewide after expanding composting and digestion programs as needed.	High	X	X	X	X	X			Yard waste ban of 2012. Food waste not included in ban.	Food waste ban in the landfill could be implemented; however, there is currently not the infrastructure required to handle the separate food waste stream that would be produced. This would only apply to the Johnson County Landfill.
4	Landfill Ban - Recyclables	Adopt an ordinance to ban specific recyclable or toxic materials from entering local transfer stations and landfills.	High	X	X	X	X	X			n/a	Certain recyclables could be banned from disposal in the landfill similar to the yard waste ban; however, implementation of this would be a challenge as these materials are often comingled and in smaller quantities together than yard waste.
5	Universal Provision of Service	Require haulers to provide curbside recycling and/or organics collection along with trash service for their customers within jurisdictional boundaries.	High	X	X	X	X	X			Implemented through hauler licensing for the single-family residential sector.	Hauler licensing could be required for commercial haulers which would ensure consistent service for commercial and multifamily residential sectors.
6	Pay-As-You-Throw (PAYT)	Enact a volume-based fee structure for trash.	High		X	X	X				Implemented in Johnson County in 2010, with City of Olathe excluded.	Concerns have been raised that PAYT encourages contamination of recyclables as when residents are out of refuse space in their container, they may place it in the recycling container. This could be further evaluated to determine what cart sizes are being selected and how they are being selected. Technical assistance could be provided by the County to residents and providers.
7	Mandatory Recycling / Source Separation	Require by ordinance compliance of households or businesses with recycling / properly separating recyclables from refuse.	High		X	X	X				n/a	Based on role of County in solid waste management, we don't believe this is a viable option for implementation and enforcement.
8	Mandatory Recycling Percentage	Require by ordinance that owners of businesses, institutions, or multi-family complexes recycle a specific percentage of solid waste generated.	High			X	X				n/a	Based on role of County in solid waste management, we don't believe this is a viable option for implementation and enforcement.

	Policy or Program	Policy or Program Description	Increased Diversion Potential	Facilities & Infrastructure	Single-Family Residential	Multifamily Residential	Commercial	County Operations	Construction & Demolition	HHW & Special Waste	Johnson County Status	Future Considerations
9	Mandatory Composting	Require by ordinance compliance of households or businesses with composting and/or properly separating organics from refuse.	High		X	X	X				Same result achieved in single-family residential through yard waste ban and hauler licensing.	Organics (and other waste collection) from commercial entities are currently not regulated by the County. Requiring hauler licensing of the commercial haulers could require availability of organics collection; however, many commercial entities use landscaping companies. Due to the yard waste ban, landscape companies may not dispose of organics in the landfill. The significant opportunity for diversion is food waste in commercial and residential entities; however, there is not the infrastructure to process this material.
10	Trash Disposal Surcharge	Enact taxes or surcharges on the disposal of municipal solid waste to increase the tipping fee relative to recycling or organics diversion.	High		X	X	X				n/a	Disposal rates set by private owner of the landfill; however, the County could impose a disposal surcharge that would be reflected through tipping fees and/or collection costs depending on how it is managed.
11	Source Separation Incentives	Enact discounted rates or fees for separating recyclables and/or organics from trash.	High		X	X	X				n/a	Collection rates set by private haulers (and City of Olathe); however, if collection services provided by the County or Cities, costs could be set in this way.
12	Recycling Collection Services	Establish curb/dockside recycling collection services for readily recyclable materials.	High		X	X	X				Provided in a variety of contracting structures by haulers licensed through the County.	Could be further expanded to the multi-family and commercial sector by the County through the licensing of commercial haulers.
13	Expanded Collection - Yard Debris	Expand existing collection services to yard debris/green waste.	High	X	X	X	X				In 2012, County required licensed haulers to provide yard waste pick up for residential service.	Could be expanded to the commercial sector; however, many commercial entities use landscaping companies. Due to the yard waste ban, landscape companies may not dispose of organics in the landfill.
14	Expanded Collection - Food Waste	Expand existing collection services to food waste (and soiled paper).	High	X	X	X	X	X			n/a	Could be enforced by the County through the licensing of residential haulers and if haulers were licensed for commercial collection. However, there is not currently the capacity to accept food waste in Johnson County unless yard waste composting facilities were modified.
15	Service Provider Contract and Franchise Agreement Incentives or Requirements	Amend Service Provider contract or agreement to achieve high diversion by providing incentives or setting requirements, e.g., contract extensions, lower franchise fees, bonuses or liquidated damages, limited or no disposal payments, required productive use of organics.	High	X				X			n/a	As contracts are not held by the County, this would need to be implemented on the City or HOA level where applicable. Not applicable in communities where collection services are open market to residents or commercial entities.
16	C&D Diversion Requirements	Adopt requirements for C&D recycling/reuse in a C&D or Green Building ordinance or building permit.	High						X		n/a	Building codes on the city and County level. Would this be enforceable by the County?
17	C&D Service Rate Incentives	Require C&D processing facility(ies) to provide financial incentives to increase recovery rates, e.g., lower tipping fees, pre-sorting discounts, coupons, and/or expedited service.	High	X					X		n/a	Currently no C&D processing facilities located in Johnson County, only landfills for disposal. Would need to invest in infrastructure.
18	C&D Permit Incentives - Refundable Fee	Charge a deposit for permitted projects, refundable upon permittee demonstrating that a high percentage, e.g., 75%, of C&D debris has been delivered to a recovery facility.	High					X	X		n/a	Permits conducted through cities and County. Would this be enforceable by the County?

	Policy or Program	Policy or Program Description	Increased Diversion Potential	Facilities & Infrastructure	Single-Family Residential	Multifamily Residential	Commercial	County Operations	Construction & Demolition	HHW & Special Waste	Johnson County Status	Future Considerations
19	Compost Processing	Develop or contract for local or regional organics processing facilities for yard debris and/or food waste.	High	X	X	X	X	X			Missouri Organics provides collection and composting of food waste. Multiple yard waste composting facilities currently.	Current yard waste composting facilities could be modified to accept food waste.
20	Anaerobic Digestion	Develop or contract for local or regional anaerobic digestion facilities for processing food waste, Fats, Oil and Grease (FOG) and/or sewage sludge.	High	X							Johnson County WWTP using anaerobic digestion to treat FOG and sludge. No food waste accepted.	Do not have sufficient capacity in infrastructure to integrate food waste into Johnson County WWTP.
21	C&D Recovery Facility - Inerts	Develop or contract for local or regional C&D Recovery facilities to recover inert materials (e.g., rock, asphalt, concrete, bricks).	High	X					X		Asphalt single recovery has been successful in the past depending on status of equipment used and price of other resources.	
22	High Diversion Goal/Plan	Adopt a goal and plan for reaching 50% or more diversion from landfilling and combustion by a specific year through reduce and reuse as well as recycling and organics diversion.	Med		X	X	X	X	X	X	n/a	Setting an aggressive goal such as this is great for motivation, but additional specific recommendations would need to be developed on how goal would be reached.
23	Goal Integration Across Plans	Make linkages between achieving high diversion and how this would serve objectives of other plans for the community, including Climate Action, Sustainability, General and Economic Development Plans.	Med					X			n/a	Would be beneficial for educational outreach.
24	Lead by Example - Green Procurement (mandatory)	Require green purchasing practices in contractual agreements.	Med				X	X	X		n/a	Difficult to enforce by County.
25	Lead by Example - Zero Waste Procurement	Incorporate Zero Waste objectives into contractual purchases and services, e.g., avoiding purchase of disposable goods, minimal waste in product and packaging design, product take-back services, and lifecycle analysis.	Med				X	X			Zero Waste goal by 2020 in County Operations. Current efforts include electronic recycling in all buildings and food waste in Administration building.	Continue efforts within County Operations to achieve high Zero Waste.
26	Zero Waste Public Venues & Events	Adopt and implement Zero Waste goals and action plans for all public venues and events. Provide training and technical assistance to venue and event coordinators, displays, and signs.	Med					X			n/a	This could be implemented in County-owned facilities as a part of the Zero Waste goal.
27	Mandatory Subscription - Recycling	Require all households and/or businesses and institutions within jurisdictional boundaries to sign up for recycling collection service.	Med		X	X	X				Same result achieved in single-family residential through hauler licensing.	Could be further expanded to the multi-family and commercial sector by the County through the licensing of commercial haulers.
28	Mandatory Subscription - Organics	Require all households and/or businesses and institutions that dispose organics within jurisdictional boundaries to sign up for organics collection service.	Med		X	X	X				Same result achieved in single-family residential through hauler licensing.	Organics (and other waste collection) from commercial entities are currently not regulated by the County. Requiring hauler licensing of the commercial haulers could require availability of composting; however, many commercial entities use landscaping companies. Due to the yard waste ban, landscape companies may not dispose of organics in the landfill.
29	Single Stream Recycling	Streamline recyclables collection by enabling customers to place recyclables into a single bin or cart for added convenience.	Med		X	X	X	X			Single stream process utilized in regional MRFs.	Focus County efforts on minimizing contamination to increase efficiency of single stream recycling proces.
30	Retailer Take-back (mandatory)	Require businesses that sell items that must be collected as HHW or are not currently reusable, recyclable, or compostable locally to take those items back for proper reuse, recycling, or disposal.	Med				X				n/a	

	Policy or Program	Policy or Program Description	Increased Diversion Potential	Facilities & Infrastructure	Single-Family Residential	Multifamily Residential	Commercial	County Operations	Construction & Demolition	HHW & Special Waste	Johnson County Status	Future Considerations
31	Product & Packaging Bans	Adopt ordinances that limit or ban sales of toxic or hard to recover products and product packaging.	Med				X				n/a	
32	Recycling Provisions	Require by ordinance that trash collection is contingent on recycling bin set out or that businesses and institutions have recycling plans and/or space for recycling.	Med		X	X	X				n/a	Commercial collection not regulated by County. Could be implemented on the residential side.
33	Licensing with Reporting	License all haulers (as an alternative to a franchise agreement or contract). Require haulers to report the amount of garbage, recyclables, and organics collected.	Med	X				X			Implemented through hauler licensing for the single-family residential sector. Commercial haulers are not licensed through County.	Could be implemented for commercial haulers.
34	Zero Waste Private Venues & Events	Promote setting of zero waste goals to owners/operators of private venues, e.g., sports stadiums, hotel conferences. Provide training and technical assistance to event coordinators for implementation of zero waste action plans.	Med				X				n/a	Could be implemented as a part of the Green Business Program with a focus on private venues.
35	Expanded Municipal Collection - Recyclables	Expand curb/dockside collection services to include recyclable items that contain toxic materials or are bulky and hard to handle.	Med		X	X	X		X	X	n/a	High cost may outway the benefit for this small waste stream.
36	Expanded Municipal Collection - Multi-Family	Expand existing collection services to include multi-family units.	Med			X					n/a	Johnson County Food Policy Council may be addressing this.
37	Multi-Family Technical Assistance	Provide outreach and technical assistance to owners and tenants of multi-family units to address recycling and/or organics collection logistics and to increase tenant participation.	Med			X					County provided technical assisting with implementation of Lenexa ordinance and supports individual complexes as requested.	This could increase as a part of the Green Business Program or separately.
38	Curbside Collection Optimization	Upgrade curbside recycling and/or organics containers and improve collection efficiencies (e.g., move from bins to carts, include additional materials, consider degree of commingling).	Med		X	X	X				n/a	This would be difficult as the implementation of these programs are on the city or hauler level. Would be beneficial to consider with city-wide or county-wide contracts.
39	Expanded Authority for Service	Expand government authority to provide or oversee collection services for sectors served by open market private haulers (if applicable).	Med					X			County currently has authority to license residential haulers to ensure consistency of services provided.	County could license commercial haulers as they currently do residential.
40	Right Size Service	Provide technical assistance to customers to help them select containers that are the right size for the amount of trash, recyclables, and organics produced.	Med		X	X	X				n/a	This can be provided by the County as-is; however, would be most beneficial if there was consistency in contracting.
41	Every-Other-Week Trash Collection	Modify trash collection schedule to every-other-week pickup and at the same time add or expand weekly organics collection.	Med		X	X	X	X			Dependant on individual hauler. Yard waste is collected from single family residential homes.	
42	Service Provider Rewards	Take actions to compensate haulers for recycling or organics diversion (composting, mulching), e.g., recycling rebates or worker rewards.	Med	X				X			n/a	Incentives would need to be provided by the contracting agency: cities, HOA, residents, etc.
43	Food Pickup for Donation	Encourage pick-up and delivery of pre-consumer, edible food from food service vendors for donation to food banks or soup kitchens, e.g., by bicycle or electric cart.	Med				X				Done through non-profit organizations.	Would need coordination with the department of health for food safety.
44	Food Waste Collection Program with Private Haulers	Initiate a sign-up program for businesses and institutions that discard food waste to obtain compost bins and collection service.	Med				X	X			This is currently provided by Missouri Organics.	Could be expanded with additional infrastructure.

	Policy or Program	Policy or Program Description	Increased Diversion Potential	Facilities & Infrastructure	Single-Family Residential	Multifamily Residential	Commercial	County Operations	Construction & Demolition	HHW & Special Waste	Johnson County Status	Future Considerations
45	Recognition & Certification Programs (national)	To encourage businesses and institutions to adopt and implement zero waste or high diversion goals and plans, help connect them to national recognition and/or certification programs.	Med				X				n/a	Green Business Program could be modified to help achieve LEED, etc.
46	C&D Policy Incentives – Adaptive Reuse	Provide incentives to developers, e.g., streamlined permit review, permit fee reductions, flexibility in parking requirements, to support "adaptive reuse" of older or historic buildings to new uses.	Med					X	X		n/a	Permits, codes, etc. are at County and city level. Would need buy-in from cities.
47	C&D Mandatory Source Separation	Require contractors to separate recyclable C&D debris from non-recyclable materials and sort the recyclables on site by staff or a service. Alternatively, require the recycled materials be hauled to a facility that sorts C&D materials.	Med	X					X		n/a	
48	Social Marketing	Develop a social marketing/behavior change marketing program to find the best means to motivate people to reduce, reuse, recycle, and separate organics.	Med		X	X	X	X	X	X	JCDHE active in social media education and behavior change supporting campaigns.	
49	Recycling Market Development Zone	Launch/participate in a regional initiative to encourage businesses to use recycled materials in their manufacturing processes for new products; collaborate with local economic development staff to provide financial, siting, permit, feedstock, and marketing assistance and incentives to businesses.	Med				X	X			n/a	
50	Resource Recovery Park or Center	Develop or contract for a central facility at which reuse, recycling, and organics processing is co-located with manufacturing and retail businesses.	Med	X	X	X	X	X			n/a	
51	C&D Recovery Facility - Organics	Develop or contract for local or regional C&D Recovery facilities to recover organic materials (e.g., wood).	Med	X					X		n/a	
52	Pre-Disposal Residuals Treatment	Develop or contract for a facility to biologically pre-treat trash residuals before disposal to stabilize organic component.	Med	X				X			n/a	Not within County control as landfill is privately owned.
53	Pre-Disposal Salvage	Develop or contract for facilities or sorting lines to remove and recover reusable, recyclable, and organic materials from source-separated trash.	Med	X				X			n/a	Not within County control as MRFs are privately owned.
54	Lead by Example - Green Procurement (voluntary)	Encourage green purchasing practices; pursue regional purchasing cooperatives to buy recycled products; adopt the precautionary principle for purchases and services and support regionally.	Low				X	X	X		Green Business Program encourages green procurement. County has implemented some green procurement internally with electronics.	Continue and expand green procurement within County Operations and encourage through Green Business Program.
55	Product Fees	Adopt point-of-sale fees for products that are toxic and/or hard to reuse, recycle or compost.	Low				X		X	X	Hard to dispose of items such as motor oil and tires often accepted at automotive facilities either free or at charge.	Some fees, such as the Tire Excise Fee, are already set at the state level.
56	Retailer Take-back (voluntary)	Encourage businesses to take back products and associated packaging, especially items that are toxic in their manufacture, use, or disposal that are not currently reusable, recyclable or compostable locally.	Low				X				Hard to dispose of items such as motor oil and tires ooften accepted at automotive facilities either free or at charge.	

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57	Fees on Disposable Items	Adopt an ordinance that places a fee on the sale of certain disposable items, such as disposable shopping bags, to incentivize customer reuse.	Low				X				n/a	
58	Recycled Content Buying Cooperative	Encourage local buying cooperatives or other coordinated approaches for private sector businesses and organizations to procure recycled content products.	Low				X				n/a	
59	Lead by Example - Recycling and/or Composting	Establish non-binding recycling targets with service provider; provide technical assistance across government operations (e.g., police, fire, facilities, parks and public areas, venues and events) to increase recycling and/or organics diversion rates.	Low	X				X			Zero Waste goal by 2020 in County Operations. Current efforts include electronic recycling in all buildings and food waste in Administration building.	
60	Backyard/ Neighborhood Composting	Encourage and provide incentives for homes, neighborhoods, schools and businesses to set up a bin for composting food and yard waste. (Considered a source reduction activity with upstream impacts.)	Low		X	X	X	X			Backyard composting program supported by County through educational opportunities. Also a part of the Green Business Program.	
61	Food Waste Pickup for Composting	Encourage pick-up and delivery of food waste from food service vendors for composting by community gardens or small farms if allowed, e.g., by bicycle or electric cart.	Low				X				Missouri Organics provides collection and composting of food waste.	Could be expanded with additional infrastructure.
62	Food Waste Outreach & Prevention (vendors)	Conduct outreach to grocery stores, restaurants, school cafeterias and other food service vendors on opportunities and practices to prevent food waste, as well as to reduce disposable food ware packaging.	Low				X				n/a	Could be addressed through Green Business Program.
63	Food Waste Outreach & Prevention (consumers)	Conduct outreach on reducing wasted food at home.	Low		X	X					Done through educational outreach.	Continue educational outreach.
64	Paper Reduction at Offices	Conduct outreach on Paperless Office strategies.	Low				X	X			Could be addressed through Green Business Program.	Continue educational outreach and Green Business Program.
65	Best Practices Training	Conduct training, e.g., site visits, walk-through audits, distribution of displays and signs to increase rates of recycling and/or composting and organics diversion at facilities.	Low				X	X			Conducted through Green Business Program.	
66	Extended Producer Responsibility (legislation)	Advocate for Producer Responsibility legislation and programs, e.g., through participating in Product Stewardship Councils and/or adopting local resolutions.	Low				X				n/a	
67	Extended Producer Responsibility (compliance)	Promote producer compliance in managing the reuse, recycling and/or safe disposal of products covered by EPR legislation.	Low				X				n/a	
68	Materials Exchange	Develop or facilitate an online network to foster business-to-business connections to match unwanted material byproducts or commodities to opportunities for reuse or recycling as feedstock.	Low				X	X			Developed and managed by MARC - www.recyclespot.org	
69	Recognition & Certification Programs (local)	To increase the level of participation in recycling and organics diversion programs, provide recognition for successes through a Green Business program or a Zero Waste Businesses or Schools program.	Low				X				Green Business Program and Awards program active with strong voluntary participation. SMSD successful with implementation and other school districts following.	

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70	Demolition Permit Publication	Require publication in the local newspaper of all building demolition permit applications to solicit salvage of reusable items by deconstruction firms.	Low						X		n/a	
71	C&D Policy Incentives – Recycling	Update Green Building Policy to provide incentives attractive to developers, e.g., higher development ratios, lower set-backs, or credits for use of materials made from recycled content or for on-site reuse and recycling.	Low					X	X		n/a	
72	C&D Recycling/Reuse Guidance	Prepare and post on the web a how-to deconstruction and services guide.	Low						X		n/a	
73	C&D Permit Incentives - Preference & Credits	Give preferential treatment and/or permit credits for projects that meet Green Building/Sustainable Building Product policies.	Low					X	X		n/a	
74	Website Content - Recycling/Reuse Directory	Create a searchable local or regional directory specific to sector and/or industry of how and where to recycle or drop off used consumer products.	Low		X	X	X	X			Developed and managed by MARC - www.recyclespot.org	
75	Outreach & Education	Promote best practices for source reduction or organize volunteer opportunities for residents to promote waste reduction, reuse, recycling and composting.	Low		X	X	X	X	X	X	JCDHE active in outreach and education.	Johnson County Food Policy Council may be addressing this.
76	Healthy Soils - Locally Grown Food	Support the establishment of community gardens, urban agriculture, and farmers markets offering organic, locally grown food, e.g., by enacting changes to local zoning ordinances.	Low					X			n/a	
77	Drop-Off - Recyclables	Partner with nonprofit agencies, e-Steward recyclers, or B-corporation certified recyclers to accept and/or establish locations in the community for drop-off of recyclable items, including those that contain toxics or are bulky and hard to handle.	Low		X	X	X	X	X	X	HHW Facilities owned and operated by Johnson County and City of Olathe.	
78	Drop-Off - Reusables	Partner with nonprofit agencies and local retailers to accept and/or establish locations in the community for drop-off of reusable or refurbishable items, including those that are bulky and hard to handle.	Low		X	X	X	X			Developed and managed by MARC - www.recyclespot.org	
79	Drop-Off - Compostables	Partner with nonprofit agencies and local retailers to accept and/or establish locations in the community for drop-off of organics items, such as yard debris, non-reusable wood, food waste and pet waste.	Low		X	X	X	X			Missouri Organics provides collection and composting of food waste. Suburban Lawn & Garden also provides mulch from yard waste collected.	
80	Drop-Off - Miscellaneous	Promote collection hubs in the community for hazardous products, medical waste and hard to recycle items, e.g., oil, antifreeze, paint, tires, batteries, pharmaceuticals, carpet. Encourage management of collected items by manufacturers or retailers.	Low				X	X	X	X	HHW Facilities owned and operated by Johnson County and City of Olathe.	This could be exemplified to multiple locations within Johnson County and could include a partnership with Olathe Facility.
81	Flea Markets, Garage Sales, and Reuse Swaps	Promote local flea markets and garage sales for sale of reusable items and swaps for household goods, e.g., clothing, toys, etc.	Low		X	X					n/a	Online swapping already very active in County.
82	Swap Shed	Develop or contract for free drop and take areas or sheds at existing centers including transfer stations, recycling centers, landfills and HHW facilities.	Low	X	X	X		X			HHW Facilities has redistribution of products collected.	This could be exemplified to multiple locations within Johnson County and could include a partnership with Olathe Facility.

	Policy or Program	Policy or Program Description	Increased Diversion Potential	Facilities & Infrastructure	Single-Family Residential	Multifamily Residential	Commercial	County Operations	Construction & Demolition	HHW & Special Waste	Johnson County Status	Future Considerations
83	Reuse Center for Sale of Used Goods	Develop or contract for reuse centers for sale of salvaged building materials and used household items.	Low					X	X		n/a	Ample thrift stores within Johnson County including Habitat ReStore for building materials.
84	Reuse Depot/Goods Bank	Develop or contract for Goods Banks of reusable items for donation to social services programs, teachers, artists and/or the public.	Low		X	X		X			n/a	Ample thrift stores within Johnson County
85	Center for Hard to Recycle Materials	Develop or contract for facilities that accept materials that are hard to recycle for reuse, refurbishing and /or recycling.	Low	X				X	X	X	HHW Facilities owned and operated by Johnson County and City of Olathe.	This could be exemplified to multiple locations within Johnson County and could include a partnership with Olathe Facility.
86	Product and Packaging Redesign & Outreach	Support evaluation and redesign of products and packaging to prevent waste; conduct or promote outreach campaigns to local businesses to reduce or eliminate non-reuseable packaging, transport containers, and serveware from their processes and retail stores.	Low				X				n/a	Difficult to regulate unless products and packaging is manufactured within County.

APPENDIX F – COMMERCIAL CASE STUDIES

APPENDIX F – COMMERCIAL CASE STUDIES

This appendix provides further details on the following local governments that have implemented programs focused on increasing recycling for the commercial sector:

- City of Austin, Texas
- City of Los Angeles, California
- City of Portland, Oregon
- City of San Jose, California
- City of Miami, Florida

1.0 CITY OF AUSTIN COMMERCIAL WASTE DIVERSION SUMMARY

1.1 Commercial Program Background

The City of Austin provides residential collection services to single-family homes up to four units (approximately 200,000 homes) and has an open competitive market for commercial collection services. Residential collection consists of collecting trash, recycling, bulky, yard waste, dead animals and limited organics (food scraps and yard waste) collection. It is estimated that twenty-five percent of the City's waste is collected by City services (cart based collection only), while the remainder is collected via the open market haulers. There are approximately 24 licensed haulers for commercial and multifamily collection in Austin.

Haulers must be licensed in order to collect refuse, recycling, construction and demolition, or organics. Licensing is based on a sliding scale where refuse collection is charged both a \$100 per vehicle solid waste fee (annually), as well as a \$3 per container per month fee (collected quarterly). Recycling and organics collection licensees pay the vehicle registration fee but are exempt from the container fee. Haulers are required to report the previous year's weights collected when they renew their license and the City uses this information for their analysis and reporting.

The City has a stated goal of 90% diversion (waste-to-energy does not count towards diversion) by 2040. The City commissioned a Community Waste Diversion Study that was completed in April 2016. The key findings included the following:

- 42% diversion rate

- Businesses and apartments generated more than 85% of all discards
- More than 80% of the discards are recyclable or compostable

The City regulates recycling by policy through the [Universal Recycling Ordinance \(URO\)](#). The key elements of the URO are as follows:

Recycle certain materials (plastics #1 and #2, paper, cardboard, glass and aluminum)

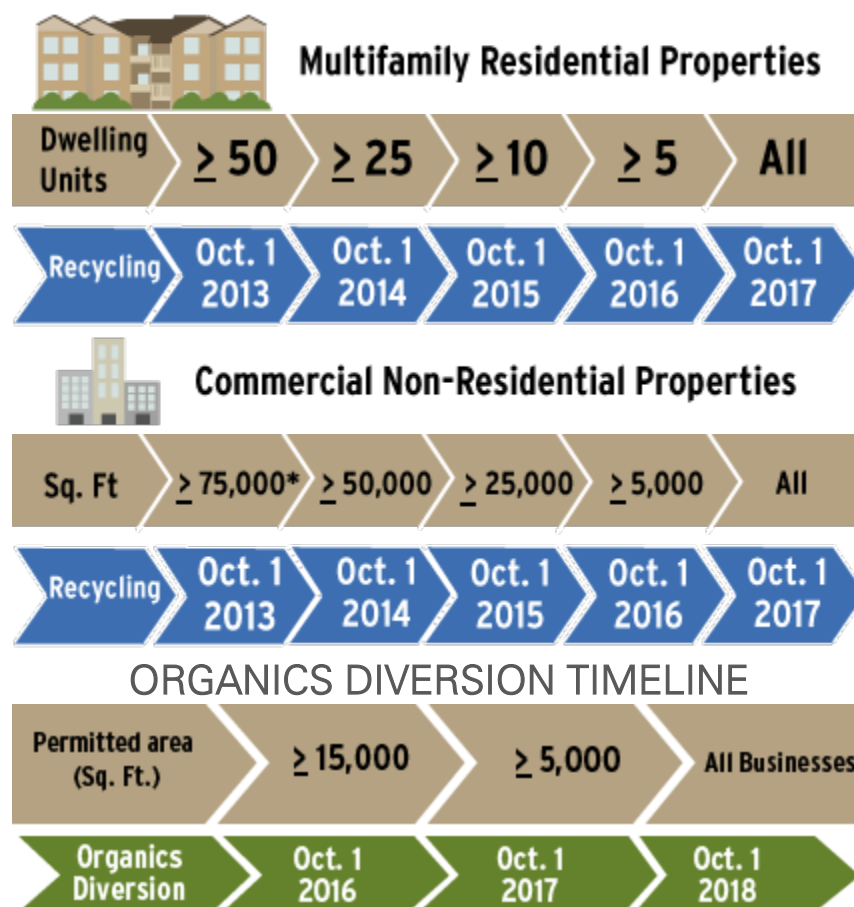
Ensure capacity and convenient location (6.4 gallon per unit per week or 1:1 ratio capacity with waste on weekly basis; recycling container within 25 feet of trash)

Identifies education requirements (signs must use graphic illustrations and be in both English and Spanish; educate new employees and tenants within 30 days of hire or move in and annually thereafter)

Details annual reporting requirements for property owners (submit online between Oct 1 and Feb 1 each year)

The URO is being rolled out in phases, with the largest businesses having to comply first and the phasing in of more businesses each year. In 2016, businesses also have to comply with Phase II of the URO, which includes source separated organics. The figure below is provided to indicate the timing of rollout of Phase II of the URO.

Figure 1: Phase 2 Rollout



Enforcement is handled through outside reports as well as internal non-compliance (i.e., not submitting the annual report). A site visit is completed and the first letter is sent to notify the business of the URO. The second letter still attempts to work with the business but also outlines the fines. The third letter is the notice of sending the issue to code enforcement. Enforcement is considered a Class C misdemeanor and fines can vary from \$200 to \$2,000 per day per occurrence; however, the City has yet to issue these fines as their focus is on helping businesses. Twenty-five cases have been forwarded to code enforcement, but they have been resolved prior to fines. Austin Resource Recovery Department (ARR) has 2.5 to 3 FTEs dedicated to compliance.

1.2 Organics Collection Program

The first phase of organics collection was rolled out in October 2016 with the businesses that have food service permits (grocers, farmers markets, and food and beverage industry) that are larger than 15,000 square feet (with the remainder of businesses being phased in subsequent years).

1.3 Program Funding

The ARR consists of approximately 450 employees, of which 350 provide collection services, and the remaining 100 provide administrative and general services. There are three divisions that address the strategic initiatives: 1) marketing and public information, 2) policy development and 3) business outreach. The business outreach department has the capacity for 10 full time employees (FTEs), although is currently staffed at nine FTEs and has an annual operating budget of \$2.5 million. ARR is an enterprise fund; however, there is a “Clean Community Fee” that funds code compliance (two-thirds) and zero waste initiatives (one-third). The Clean Community Fee is a monthly fee assessed to both residents and business. The residential rate is \$7.65 per month (including single-family homes, apartments and condos) and the commercial property rate is \$21.45 per month.

1.4 Hauler and Generator Program Attitudes

The general consensus with the program is that approximately ten percent prefer the program, ten percent dislike the program and the remainder will comply with assistance. The City’s goal is to work with the businesses to get them into compliance as quickly as possible.

1.5 Overall Assessment of Program and Lessons Learned

Education is a major component of an effective program. Lessons/recommendations:

- First year was spent assisting customers meet the program requirements. It is important to engage all stakeholders.
- Static minimum standards do not work for all generators. The City is working on providing a result based requirement with the next roll out (organics) to make the requirements more flexible. Instead of enforcing a static rule structure for all business, the requirements will be based more on the end goal (results). The City also has a waiver request in the annual report for businesses that just cannot meet the requirements.
- The majority of the responsibility is on the businesses, and a lesson learned is that more responsibility should be on the haulers as well. The haulers should not be allowed to knowingly provide services to non-compliant businesses and should also have education requirements.
- Recommend using graphics designer for educational publications.

Overall, the City is extremely proud of the business community response thus far; however, the smallest commercial businesses have yet to be pulled into the URO, and they will be challenging due to the smaller size businesses and apartment complexes that likely do not have a key person on staff to work towards compliance.

2.0 CITY OF LOS ANGELES COMMERCIAL WASTE DIVERSION SUMMARY

2.1 Commercial Program Background

The City of Los Angeles' current program is an open market commercial hauling where the City issues permits to collect commercial waste from over 70,000 commercial accounts including large multifamily dwellings and commercial establishments. Approximately 45 permitted haulers currently serve the commercial and multifamily accounts and the remaining permitted haulers provide construction and demolition services. The current program is a commercial hauler licensing program where haulers fill out an application, sending in reports and pay fees. Commercial businesses and multifamily dwellings of 5 units or less are required to recycle via California [AB341](#). However, compliance is consistent.

The City is in the process of moving towards exclusive franchising for commercial collection (trash, recycling and organics) and are currently in the process of negotiating contracts. Contracts were awarded at the end of 2016. The start of a two year transition and implementation period will begin in the summer of 2017. The process of moving to exclusive franchising has been a several year iterative process; however, the City is interested to target commercial sector to achieve its zero waste goals.

In order to get public engagement on moving towards the exclusive commercial franchise system, the City held over 25 public stakeholder workshops, a workshop solely for zone development, 10 council committee meetings, 5 city council meetings, multiple board of Public Works meetings, and also mailed and had online stakeholder surveys. The process began in July 2006 when City Council approved a 7-year notice to modify collection at multifamily properties. In December 2011, a 5-year notice was provided to haulers of commercial businesses. The City Council approved the franchise implementation plan in April 2013, the Final Environmental Impact Report and accompanying city ordinance in April 2014, and issued an RFP in June 2014 for the Zero Waste LA Franchise system.

The ordinance in place establishes the framework for an exclusive franchising system. With the new exclusive franchise system, the City will be divided into 11 zones, which will provide more efficiency in routing and reduce greenhouse gas emissions. The haulers will be required to have routing efficiencies, late model low emission clean fuel vehicles, and monitor vehicle miles traveled. Every commercial and multifamily account will have recycling collection. The addition of food scraps and yard trimmings collection will be phased in over several years as infrastructure comes online. The City will provide certification of all facilities used by haulers. The haulers will be required to submit reports on the

materials collected. In addition, haulers will be responsible for education as well as completing waste audits. The City will provide the first line of customer service contact.

The franchise agreements will be ten-year contracts with two, five-year optional renewals. Cost of living increases will be capped and a uniform rate structure across the City and consistent customer experience is the objective.

The City will continue to use licensing moving forward for commercial and demolition debris haulers and contractors that haul their own wastes (commercial and demolition debris waste is not included in the franchising). The City does not have a separate license for recyclable materials haulers as the permits are based on tonnage (over 1,000 tons per year needs a permit).

The State of California has a goal of 75% recycling and Los Angeles has a goal of 90% reduction by 2025. In addition, the City of Los Angeles requires recycling services to be provided for all commercial establishments within the City's Solid Waste Collection Ordinance (Article 6). The estimated diversion rate now is 70% (source reduction and recycling).

2.2 Organics Collection Program

[State of California AB1826](#) requires mandatory commercial organics programs. The new franchise system requires organics collection; however, the City does not currently have the infrastructure to handle the increase in organics collection currently. They plan to do a phased roll out of organics collection in the next 3-4 years. Once the infrastructure has been established, the City will pass an ordinance requiring the organics collection. The commercial food recycling program currently serves approximately 850 accounts; whereas there are over 10,000 food service establishments.

2.3 Program Funding

Administration of the new franchise system will require significant new resources to provide customer service and oversight of franchise contracts (both through reporting and at customer sites). The City has added several staff for inspectors for contract compliance (24 inspectors). Fees for staff support are generated through hauler fees (currently) plus franchise fees.

2.4 Hauler and Generator Program Attitudes

There was initial opposition to the exclusive franchise program as many haulers and businesses did not recycle and exclusive franchising eliminated the businesses' opportunity to receive competitive bids; however, the City was aggressive in getting the public on board with the transition. It is problematic to

determine how the franchise costs compare to the current open system for commercial customers, so it is unknown how business will react to new rates.

2.5 Overall Assessment of Program and Lessons Learned

The City has undergone a several year process to move towards exclusive franchising for commercial collection. The process began in July 2006 and the two-year customer transition period will start in summer of 2017. It is too soon to tell how successful the program will be; however, due to the extensive public engagement, it is anticipated that it will be successful.

3.0 CITY OF PORTLAND COMMERCIAL WASTE DIVERSION SUMMARY

3.1 Commercial Program Background

City of Portland has 15 franchised haulers providing residential collection services within exclusive service areas. Commercial collection (and five units and greater) is provided in an open, competitive market. The City has approximately 37 licensed haulers, plus a number of independent recyclers. It is estimated that 73% of solid waste is generated by the commercial sector.

Haulers are required to pay an annual fee of \$350 for license renewal and a commercial tonnage fee of \$8.30 per ton for every commercial ton collected. The haulers are required to report tonnages quarterly (and also remit the per ton fee at this time). Reporting tonnages can also be matched against the Metro authority that operates the areas two transfer stations. Tip fees at the transfer station are \$95 per ton (excludes governmental fees). Allocation of origin of tonnage from inside or outside of Portland and whether the tonnage was residential or commercial can be difficult without more detailed reporting requirements. The costs associated with the City's fee (passed on to businesses) are estimated to dwarf the collections costs.

By code, businesses are required to recycle 50% of their waste. The businesses are not monitored for participation in the mandatory program and success is viewed on a macro level, as their overall recycling/diversion rate has been very favorable (calculated at 65% for commercial market without diversion credits which equate to 6%). Credits have been set up by state law; however, will be calculated differently moving forward. The "Portland Recycles!" plan set a diversion goal of 75% in 2008 (including credits). The "Portland Recycles!" plan is described in more detail below.

Oregon state law also requires that haulers cannot charge more for recycling than for trash; however, generally, this does not pose compliance issues with the relatively high tipping rates in the area.

Penalties are levied against companies on a complaint basis; however, very few complaints are reportedly received on a commercial basis. The staff goals focus on education and outreach. If complaints are received that a business is not complying with the recycling code, both the business and the hauler could be held responsible. A business has 30 days to come into compliance after a complaint is received, otherwise a penalty of up to \$600 will be assessed; however, the City has rarely issued these fines. Haulers could be held responsible for knowingly collecting noncompliant waste and would be at risk to lose their license.

3.2 Portland Recycles!

“[Portland Recycles!](#) A New Waste Prevention and Recycling Plan for Portland” plan was developed in 2006 and established four main goals for the City of Portland:

Increase the recovery rate to 75% by 2015

Reduce toxics and greenhouse gases

Have zero growth in the waste stream

Make the system as a whole more sustainable

New recycling requirements for businesses were implemented including recycling target materials (with a focus on food scraps, paper, and construction materials) while maintaining the competitive system for waste hauling services. Waste haulers are required to offer their business customers these services, including collection of the materials subject to mandatory recycling. The commercial changes were approved in April 2015. Phase One includes mandatory food scrap diversion for the businesses that generate the most food scraps.

Phase Two of the Portland Recycles! Plan (2009-2015) incorporates mandatory food scrap diversion, expanding to include all food scrap generators above specified level or size.

3.3 Organics Collection Program

Source separated organics collection is outlined in the “[Portland Recycles!](#)” program; however, the City has yet to formally hold generators responsible for compliance. It is anticipated that this requirement will be enforced starting in the 3rd quarter of 2017 as more processing infrastructure becomes available; however, there are already more than 1,000 businesses participating in the program.

3.4 Program Funding

There are seven FTEs in the Sustainability at Work department (mission includes assisting businesses). Staff provide outreach and technical assistance and are supported through the commercial collection fee, which is an \$8.30 per ton fee assessed on every commercial ton collected within the City.

3.5 Hauler and Generator Program Attitudes

The City received much negative feedback with discussion surrounding the franchising commercial collection services. As a result, the City chose not to franchise because of the City’s extensive reporting and service requirements, as well as its ability to direct materials within the existing solid waste system. Although commercial collection services remains an open competitive collection system, the haulers are highly regulated by the current City codes, except for rate setting. All material collected is delivered to a

Portland “Metro” transfer station. Metro is the regional government that oversees the planning and regulation for regional transfer and disposal infrastructure. The City is able to cross check reports from Metro with the haulers quarterly reports to determine the scope of the commercial tonnage collected and the associated fees.

3.6 Overall Assessment of Program and Lessons Learned

Some of the lessons learned include the need to assert strong leadership in establishing requirements for haulers and adequate lead time for program implementation. Commercial recycling success is certainly impacted by the higher disposal tipping fees (\$95/ton).

4.0 CITY OF SAN JOSE COMMERCIAL WASTE DIVERSION SUMMARY

4.1 Commercial Program Background

The City of San Jose is the 10th largest City in the United States with more than 1 million residents. The City estimates that it generates more than 250,000 tons per year of commercial solid waste. Prior to 2012, the City operated a non-exclusive franchise system for commercial collection that included approximately 25 licensed haulers. The estimated commercial diversion rate in FY 2010-11 was 26% with 18% representing the commercial recycling rate.

In 2005, the City initiated a planning process to create an exclusive franchise system with one hauler. The drivers for transitioning to an exclusive franchise collection program included the goal of fostering more commercial diversion and creating waste assurance to support development of processing infrastructure – recycling and organics. The planning process included a number of meetings and discussions with various stakeholders, including licensed haulers.

An RFP to provide wet/dry collection for the entire City was released in 2010. The City awarded an exclusive commercial collection franchise to Republic Services for a term of up to 15 years to begin in 2012. The wet/dry collection system is very unique with the use of two containers for all of the recyclable materials, organics and non-recoverable materials. The dry materials container is for the collection of recyclable materials, clean wood, and reusable items. The wet system is for the collection of the remaining materials including the recoverable organics.

The City entered into two separate materials processing agreements to process the materials collected. Where feasible, the non-recoverable materials are removed from the wet stream and the remaining organic materials are processed at an anaerobic digestion facility. The dry stream also is processed to remove the contaminants and then prepared for market as recovered recyclable materials. Based on data provided by the City staff, the commercial recycling rate increased from 18% in FY 2010 -11 to 38% 2013 and to 47% in 2014 (excluding organics diversion). The FY 2017 commercial recycling rate is reported to exceed 70% (including organics diversion).

4.2 Organics Collection Program

The transition to the wet/dry collection system was implemented to maximize the quantities of organics collected for diversion and recovery. Without the need to source separate the organics from the non-organics, it was anticipated that the participation rate and quantities set-out would increase. The quantities of commercial organics collected through source separation in FY 2010-11 were approximately 20,000 tons. The City estimates that more than 65,000 tons per year of organics were diverted and

processed for recovery in 2013 and 2014. This increase in organics diverted includes a number of challenges, including but not limited to high levels of contamination and the need to modify the wet stream processing line at the materials recovery facility.

4.3 Program Funding

The commercial program is funded through the franchise fee paid by the exclusive franchisee and the [AB 939](#) or Source Reduction and Recycling Fee.

4.4 Hauler and Generator Program Attitudes

The extensive planning process was beneficial to educate the various commercial generators on the collection program change. The exclusive franchisee is contractually responsible for conducting outreach, providing containers and addressing customer concerns. The City staff monitor contract compliance to meet the specified performance requirements. Transition to the wet/dry commercial collection program included a number of challenges such as timely change of customer containers and adequate service levels. As for hauler attitudes, no litigation occurred as a result of the transition from a non-exclusive to an exclusive franchise collection program.

4.5 Overall Assessment of Program and Lessons Learned

The program has achieved its objective of substantially increasing the commercial diversion rate. The extensive planning process helped mitigate some of the hauler and commercial generator concerns. However, additional targeted outreach to specific types of generators is recommended prior to and during the transition because of the varying customer needs. Lastly, the RFP process should be undertaken with adequate time to draft, review, negotiate, and award the franchise. Such an approach conveys a fair and independent approach to assist in managing stakeholder perceptions.

5.0 CITY OF MIAMI COMMERCIAL WASTE DIVERSION SUMMARY

5.1 Commercial Program Background

Per the U.S Census, the City of Miami had an estimated population of nearly 430,000 in 2015. The number of households were estimated at approximately 152,500 with more than 70% of the residents composing these households of Hispanic origin. The number of business establishments was estimated at approximately 98,000 in 2012.

The City of Miami's municipal crews collect refuse from single family residents and multifamily dwelling with three (3) or fewer units. The City offers twice a week refuse collection, once a week bulky collection (including yard waste) and every other week collection of commingled recyclable materials. Multifamily dwellings of four (4) or more units, commercial businesses and industry are serviced by licensed commercial haulers.

All commercial haulers engaged in collecting and disposing of solid waste within the corporate limits of the City of Miami are required to have a franchise granted to it by the City of Miami. Article II, Section 22-46 of the City of Miami Code states:

“The city commission is authorized, from time to time, to grant one or more franchise(s) granting the right and privilege to operate a commercial garbage and trash collection and disposal system in, upon, over and across the present and future streets, alleys, easements and other public places of the city for the purpose of collecting all solid waste from commercial and multifamily establishments as defined in this chapter.”

As reflected above, the City provides non-exclusive commercial solid waste franchise to commercial haulers to serve commercial properties and apartment buildings of four (4) or more units within the City of Miami. The length of the term of the franchise agreement is for five (5) years with three (3) one (1) year option periods to be renewed through at the discretion of the City of Miami. As of 2016, there were eleven (11) commercial haulers that have been granted non-exclusive franchises to collect refuse within the City of Miami.

In 2015, the City of Miami enacted revisions to their solid waste ordinance requiring the following information to be submitted by all commercial franchisees:

Annually, an "annual recycling plan" that describes recycling activities and services available to commercial and residential establishments in the city that are offered by the franchisee.

Annually, an "annual recycling report" that describes resources and money of the franchisee utilized in connection with the recycling program, a list of recycling accounts, and a list of accounts that do not avail themselves of the franchisee's recycling opportunities.

Quarterly, a report describing recycling and diversion goals and recycling/diversion accomplishments. Annually, copies of literature provided to each customer in English, Spanish, and Creole describing the franchisee's recycling programs and services available.

Moreover, there are a number of other requirements addressing the operations of the franchisees' within the City of Miami. All of these requirements are described in the City's ordinance which is provided as an attachment.

5.2 Organics Collection Program

In addition to the above requirements addressing recycling and diversion, the 2015 ordinance revisions addressed organics collection and management. These requirements are provided below.

“Any franchisee servicing an address that engages in the sale of produce located within the produce market shall, no later than October 1, 2016, offer an organic waste recycling program. Said program shall utilize composting and/or any other organic waste recycling program which diverts organic waste from a disposal site to a city waste-to-energy facility.”

No additional information surrounding organics management by franchisees was available.

5.3 Program Funding

As a condition of receiving a non-exclusive franchise, commercial haulers must pay a franchise fee of 24% of gross receipts to the City of Miami on a monthly basis. Within 90 days of the end of the City's fiscal year, each franchisee must deliver a certified statement of its annual gross receipts and charge-offs generated from accounts within the city prepared by an independent certified public accountant ("CPA"). Payment of the franchise fee may be enforced through the denial of a business license and/or the revocation of the franchise. The second primary source of program revenue is a \$75 fee per active commercial account payable by each franchisee to the City of Miami by October 1 of each year. No information was available on the total revenues generated via these fees at this time.

5.4 Hauler and Generator Program Attitudes

No information was available addressing hauler and generator attitudes at this time.

5.5 Overall Assessment of Program and Lessons Learned

The City of Miami's commercial refuse and recycling program offers a unique framework. The use of the application of non-exclusive franchises as a means to hold haulers accountable, gather program data and generate revenues appears to achieve multiple program objectives. However, unavailable implementation data including revenues generated, quantities of materials collected for recycling, and other program data precludes a thorough evaluation of the effectiveness of this program approach.

AUSTIN, TEXAS CASE STUDY ATTACHMENTS

ARTICLE 5. - UNIVERSAL RECYCLING.

Division 1. - General Provisions.

§ 15-6-80 - APPLICABILITY.

This article applies in the City's zoning jurisdiction.

Source: 1992 Code Section 12-3-121; Ord. 031204-14; Ord. 031211-11; Ord. 20101104-018; Ord. No. 20140612-010, Pt. 1, 6-23-14.

§ 15-6-81 - RESPONSIBLE PARTY GENERAL RULE; EXCEPTION.

- (A) With the exception of Subsection (B), a responsible party shall comply with any duty that is imposed on the responsible party in this Article 5.
- (B) A tenant or lessee on a premises who contracts or arranges with a hauler for solid waste service or who self-hauls is deemed the responsible party with respect to that portion of the premises over which the tenant or lessee has care, custody, control, or possession.

Source: Ord. No. 20140612-010, Pt. 2, 6-23-14.

§ 15-6-82 - RIGHT OF ENTRY.

- (A) City staff authorized by the director or the code compliance director may enter a premises to inspect for compliance with this article.
- (B) An inspector shall present the inspector's credentials to an occupant of the premises on request.
- (C) An inspector shall make a reasonable effort to locate the responsible party and request entry to the premises.

Source: 1992 Code Section 12-3-122; Ord. 031204-14; Ord. 031211-11; Ord. 20101104-018; Ord. 20130425-007; Ord. No. 20140612-010, Pt. 3, 6-23-14.

Division 2. - Service.

§ 15-6-91 - AFFECTED PREMISES.

- (A) The responsible party for a premises of which all or part is used for multi-family residential use shall ensure that tenants and employees have access to on-site recycling services described under this article, for that portion of the premises that is multi-family residential, effective:
 - (1) immediately for premises with 75 or more dwelling units;
 - (2) October 1, 2013 for premises with 50 or more but less than 75 dwelling units;
 - (3) October 1, 2014 for premises with 25 or more but less than 50 dwelling units;
 - (4) October 1, 2015 for premises with 10 or more but less than 25 dwelling units; and
 - (5) October 1, 2016 for premises with 5 or more but less than 10 dwelling units.
- (B) The responsible party for a premises of which all or part is used for office, medical office, medical facilities, religious assembly, or private educational facilities shall ensure that tenants and employees have access to on-site recycling services described under this article, for that portion of the premises that has one or more of the uses described in this Subsection (B), effective:
 - (1) immediately for premises with more than 100,000 square feet of the non-residential uses described in this Subsection (B); and
 - (2) October 1, 2013 for premises with more than 75,000 square feet and up to 100,000 square

feet of the non-residential uses described in this Subsection (B).

- (C) The requirements in Subsection (D) of this section are in addition to the requirements in Subsections (A) and (B) of this section.
- (D) The responsible party for a premises of which all or part is used for non-residential use, including but not limited to those uses described in Subsection (B) of this section and also including hotels and lodging, grocery stores, and commercial businesses, shall ensure that tenants and employees have access to on-site recycling services described under this article effective:
 - (1) October 1, 2014 for premises with more than 50,000 square feet of any type of non-residential use;
 - (2) October 1, 2015 for premises with more than 25,000 square feet and up to 50,000 square feet of any type of non-residential use;
 - (3) October 1, 2016 for premises with more than 5,000 square feet and up to 25,000 square feet of any type of non-residential use; and
 - (4) October 1, 2017 for all non-residential premises that are not described in (D)(1)—(3) of this subsection.
- (E) In addition to complying with the other requirements described in this section, the responsible party for a premises of which all or a portion has use attributable to a food enterprise that requires a food permit under Section 10-3-61 (Permit Required) of this Code to operate shall ensure that employees at the food enterprise have access to on-site diversion of organic materials effective:
 - (1) October 1, 2016 where the square footage in a certificate of occupancy, food enterprise permit, or similar document issued by a government entity for the food enterprise is 15,000 square feet or more;
 - (2) October 1, 2017 where the square footage in a certificate of occupancy, food enterprise permit, or similar document issued by a government entity for the food enterprise is between 5,000 square feet to 14,999 square feet; and
 - (3) October 1, 2018 for all food enterprises that hold a food enterprise permit and that are not described in (E)(1), (2) of this subsection.
- (F) For purposes of determining the effective date under this section the director may verify the square footage attributable to a specific use by consulting appraisal district or other public records or by requesting a valid certificate of occupancy or approved site plan documenting the types of uses.
- (G) A responsible party for an affected premises to which an effective date in Subsections (A)—(E) of this section applies and who begins operations after an applicable effective date shall comply with this ordinance on the date the affected premises is issued a certificate of occupancy.

Source: 1992 Code Section 12-3-141; Ord. 031204-14; Ord. 031211-11; Ord. 20101104-018; Ord. 20130425-007; Ord. No. 20140612-010, Pt. 4, 6-23-14.

§ 15-6-92 - DIVERSION REQUIREMENTS FOR AFFECTED PREMISES.

- (A) On-site recycling and organic material diversion services required under this article shall:
 - (1) collect at least the following materials: paper (including mixed paper and office paper), plastics PETE (#1) and HDPE (#2) bottles and containers, aluminum cans, corrugated cardboard, and glass bottles and jars;
 - (2) collect organic materials, if a premises with a food enterprise is subject to Subsection (E) of

Section 15-6-91 (Affected Premises);

- (3) provide receptacles, collection, capacity, and storage areas that comply with applicable administrative rules; and
- (4) remove the recyclable or organic materials by either:
 - (a) transporting the recyclable and organic materials to a materials recovery or composting facility authorized by law;
 - (b) contracting with a City-licensed recycling service provider to transport the recyclable and compostable materials to a materials recovery or composting facility authorized by law; or
 - (c) transporting recyclable or organic material, as permitted and required by City Code, to a material recovery facility, food bank, processor, material broker, urban farm, urban ranch, rural farm, rural ranch, community garden, or a facility that prioritizes the hierarchy of beneficial use as set out in Subsection (D) of this section.
- (B) The director may add to the list of recyclable materials required under Subsection (A)(1) of Section 15-6-92 (Recycling Requirements for Affected Premises) by providing notice on the City's website at least 365 continuous days before adding the additional materials.
- (C) The department shall adopt rules that establish a process in which the responsible party for an affected premises can request:
 - (1) a waiver of certain requirements in this article;
 - (2) approval to comply with this article by achieving the City's Zero Waste Goal through alternative means;
 - (3) approval to substitute another recyclable material in place of a required recyclable material listed in Subsection (A)(1) above;
 - (4) approval to comply with this article by sharing solid waste, recycling, or organic materials diversion services;
 - (5) approval of a deduction of square footage under Subsection (E) of Section 15-6-91 (Affected Premises) if the food enterprise serves only pre-packaged food; or
 - (6) approval for performing recycling or organic materials diversion on-site.
- (D) In accordance with the requirements of the Good Faith Donor Act set forth in Chapter 76 of the Texas Civil Practice and Remedies Code, the department shall by rule encourage the responsible party for affected premises to follow the hierarchy of beneficial use of scrap food which, beginning with the most beneficial, is:
 - (1) feeding hungry people;
 - (2) feeding animals;
 - (3) providing for industrial uses; and
 - (4) composting.

Source: 1992 Code Section 12-3-142; Ord. 031204-14; Ord. 031211-11; Ord. 20101104-018; Ord. 20130425-007; Ord. No. 20140612-010, Pt. 5, 6-23-14.

§ 15-6-93 - EDUCATION.

- (A) The responsible party for an affected premises shall provide recycling information and instructions in accordance with rules adopted by the director to:
 - (1) all tenants and employees of the premises annually;

- (2) a new employee or tenant no later than the thirtieth day after the tenant occupies or the employee begins work at the premises; and
 - (3) all employees or tenants not later than the 30th day after a substantive change in the recycling service offered at the premises.
- (B) The responsible party shall provide recycling information and instructions in accordance with rules adopted by the director to:
- (1) each business, tenant, or organization located at the premises annually;
 - (2) a business, tenant, or organization newly located to the premises not later than the 30th day after any change in occupancy; and
 - (3) all occupancies at the premises not later than the 30th day after a change in the recycling service offered.
- (C) All information and documentation, including signage, required to be provided to persons or posted as public information under this article shall be written in English and Spanish and include universal symbols as adopted by the director.
- (D) Each container designated or used for collection and disposal of materials to a state-recognized landfill shall be prominently marked "Landfill Trash" in English and Spanish and in compliance with the rules adopted by the director.
- (E) Each container designated or used for collection or transport of recyclable or organic materials shall be affixed with a sign that includes:
- (1) the universal chasing arrows recycling symbol;
 - (2) the type of materials accepted written in English and Spanish; and
 - (3) the term "Recycling" or "Compostables" or "Organics", as appropriate.

Source: 1992 Code Section 12-3-143; Ord. 031204-14; Ord. 031211-11; Ord. 20101104-018; Ord. 20130425-007; Ord. No. 20140612-010, Pt. 6, 6-23-14.

Division 3. - Reporting Requirements.

§ 15-6-101 - ANNUAL DIVERSION PLAN.

- (A) The responsible party for an affected premises shall submit a recycling plan to the department by February 1 of each year starting with the year in which requirements of this article apply to the premises.
- (B) The responsible party for an affected premises shall submit a recycling plan for a new business, building, or multi-family residential complex not later than the 30th day after receiving a certificate of occupancy or beginning operations or following any change that reduces recycling service or the types of materials collected.
- (C) A plan must:
- (1) be on a form prescribed by the director;
 - (2) list the materials to be diverted;
 - (3) state the service capacities for landfill trash, recyclables, and organic materials;
 - (4) state the collection method and service providers for landfill trash, recyclables, and organic materials; and
 - (5) include information or documentation as required by the director to verify compliance with this article.
- (D)

The director may exempt a property from submitting a Recycling Plan if the property contracts with the City for solid waste and recycling services or if exempting the property is consistent with the City's Zero Waste Goal set out in Resolution No. 20090115-050 and the Department's Master Plan adopted in Resolution No. 20111215-047, as those resolutions may be amended from time to time.

Source: 1992 Code Section 12-3-161; Ord. 031204-14; Ord. 031211-11; Ord. 20101104-018; Ord. 20130425-007; Ord. No. 20140612-010, Pt. 7, 6-23-14.

§ 15-6-102 - RESERVED.

Editor's note— Ord. No. 20140612-010, Pt. 8, effective June 23, 2014, repealed § 15-6-102, which pertained to biannual quantity report. See the References to Ordinances for complete derivation.

§ 15-6-103 - NOTICE OF CONTRACT TERMINATION.

A person who provides recycling or organic diversion service under this article by contract with a recycling service provider shall notify the department in writing not later than the 30th day after the person terminates the contract.

Source: 1992 Code Section 12-3-163; Ord. 031204-14; Ord. 031211-11; Ord. 20130425-007; Ord. No. 20140612-010, Pt. 9, 6-23-14.

§ 15-6-104 - NOTICE OF CHANGE OF PROVIDER.

(A) The responsible party for an affected premises shall notify the department in writing if the person:

- (1) discontinues self-hauling and contracts with a recycling or organic materials diversion service provider; or
- (2) terminates a contract with a provider licensed under Article 3 (*Private Solid Waste Collection Service*).

(B) A responsible party shall submit the notice required by this section to the department in accordance with rules adopted by the director.

Source: 1992 Code Section 12-3-164; Ord. 031204-14; Ord. 031211-11; Ord. 20101104-018; Ord. 20130425-007; Ord. No. 20140612-010, Pt. 10, 6-23-14.

Division 4. - Registration Requirements.

§ 15-6-105 - REGISTRATION OF RECYCLING AND ORGANIC MATERIAL HAULERS AND RECYCLING PROVIDERS.

(A) A person who owns, operates, or provides a recycling and organic material hauler or recycling processor business or service located within the territorial jurisdiction of the City or to any premises within the territorial jurisdiction of the City shall submit to the director in compliance with applicable rules adopted for such registration the following:

- (1) physical address of operation;
- (2) proof of insurance - annual commercial fleet policy;
- (3) drivers' licenses for company drivers, including commercial drivers' licenses, if applicable;
- (4) proof that the recycling hauler or recycling processor is using the correct vehicle to transport recyclable materials consistent with Section 15-6-42 (Vehicles and Equipment); and
- (5) other documentation as specified in applicable rules for such registration adopted by the director.

(B)

A person who owns, operates, or provides a recycling processor business agrees as a condition of such registration to submit to a random site inspection of their property or premises upon request by the director to ensure that the processor's operations are being conducted in compliance with all applicable City Codes and regulations relating to land development, health and safety, recycling, and nuisance abatement.

Source: Ord. 20101104-018; Ord. No. 20140612-010, Pt. 11, 6-23-14.

LOS ANGELES, CALIFORNIA CASE STUDY ATTACHMENTS

ORDINANCE NO. 182986

An ordinance retitling Chapter VI, Article 6; adding new Sections 66.03 and 66.33 to 66.33.11 of the Los Angeles Municipal Code relating to the collection of solid waste from commercial establishments and multifamily dwellings; amending Sections 66.00, 66.00.1, 66.01, 66.02, 66.08.1, 66.08.3 through 66.08.6, 66.17.1, 66.23 through 66.25, 66.27 through 66.30, and 66.32; and repealing Sections 66.01.1, 66.04, 66.06, 66.07, 66.08.2, 66.09, 66.10, 66.18 through 66.22; and 66.26.

**THE PEOPLE OF THE CITY OF LOS ANGELES
DO ORDAIN AS FOLLOWS:**

Section 1. Article 6 of Chapter VI of the Los Angeles Municipal Code is retitled to read as follows:

ARTICLE 6

SOLID WASTE COLLECTION

Sec. 2. Section 66.00 of the Los Angeles Municipal Code is amended to read as follows:

SEC. 66.00. DEFINITIONS.

For the purpose of this Article, the following words and phrases are defined and shall be construed as set out here, unless it is apparent from the context that they have a different meaning:

1. **Board** shall mean the City of Los Angeles Board of Public Works.
2. **Bureau** shall mean the Bureau of Sanitation of the City of Los Angeles or its duly authorized representative.
3. **City** shall mean the City of Los Angeles.
4. **Collection Services** shall mean the collection, transportation and delivery for processing or disposal of solid waste from commercial establishments and multifamily dwellings.
5. **Commingled Recyclables** shall mean recyclables that have been separated or kept separate from other solid waste at the point of generation for the purpose of additional sorting or processing for recycling or reuse in order to return the material to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace. Commingled recyclables shall not consist of construction and demolition waste.

6. **Commercial Establishment** shall mean all real property in the City, except residential premises and premises that receive solid waste disposal service from the City, upon which for-profit or not for-profit activity is conducted, including but not limited to manufacturing, transportation, retail sales, wholesale operations, services, hotel or motel operations, education, or other businesses or institutional activity.

7. **Construction and Demolition Waste** shall mean solid waste that results directly from construction, remodeling, repair, demolition, or deconstruction of buildings and other structures, does not contain hazardous waste, and contains no more than one percent (1%) putrescible wastes by volume, calculated on a monthly basis. Construction and demolition waste includes, but is not limited to, asphalt, concrete, Portland cement, brick, lumber, wallboard, roofing material, ceramic tile, pipe, glass, carpet or associated packing.

8. **Director** shall mean the Director of the bureau of Sanitation of the city of Los Angeles.

9. **Dwelling Unit** shall mean one or more rooms, one of which is a kitchen, designed for occupancy by one family for living and sleeping purposes.

10. **Gross Receipts** shall mean those receipts defined as gross receipts in Los Angeles Municipal Code Section 21.00(a) generated by the collection of solid waste including, but not limited to, service, container rental, disposal and processing charges. For purposes of Sections 66.32.1 through 66.32.5, gross receipts shall not be applicable to receipts generated by the collection and sale of source-separated materials or commingled recyclables.

11. **Hazardous Waste** shall mean any waste as defined in California Health and Safety Code Section 25117.

12. **Multifamily Dwelling** shall mean any building, structure, unit or location designed for residential occupancy, exclusive of "Single Family Dwelling" and dwelling units that receive solid waste disposal service from the City.

13. **Organics** shall mean compostable solid waste that is source separated and placed in a container for collection. Organics include, but are not limited to, grass, leaves, tree branches, clean wood free of paint, nails or any treatment, food scraps, food soiled boxes and paper.

14. **Person** shall mean natural person, business, contractor, joint venture, joint stock company, firm, partnership, association, club, company, corporation, business trust, or organization, or the manager, employer, agent, servant, officer, or employee of any of them. Person shall not mean the City of

Los Angeles, or any of its constituent entities, departments, boards, employees or officers.

15. **Recyclables** shall mean solid waste that is capable of being recycled or re-reused in the marketplace, whether source separated or commingled with other solid waste.

16. **Residential Premises** shall mean single family dwellings and multifamily dwellings.

17. **Self-Hauler** shall mean a person who is not primarily engaged in the business of collection, removal or transportation of solid waste but in the course of performing the person's primary business function incidentally transports solid waste. Examples of self-haulers include, but are not limited to, gardeners, landscapers and household cleanup service firms. A person who collects, removes or transports construction and demolition waste is not a self-hauler under any circumstance, but rather a solid waste hauler subject to all of the requirements applicable to solid waste haulers.

18. **Single Family Dwelling** shall mean a building designed for residential occupancy, and containing one or two dwelling units.

19. **Solid Waste** shall mean all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, construction and demolition waste, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes.

"Solid waste" does not include any of the following wastes:

- (i) Hazardous waste;
- (ii) Radioactive waste regulated pursuant to Part 9 of Division 104 of the California Health and Safety Code;
- (iii) Medical waste regulated pursuant to Part 14 of Division 104 of the California Health and Safety Code;
- (iv) Pharmaceutical waste as defined in California Health and Safety Code Section 117748.

20. **Solid Waste Disposal Facility** shall mean a facility fully permitted under applicable local, state, and federal laws and regulations to accept and dispose of solid waste.

21. **Solid Waste Hauler** shall mean any person engaged in the business of providing for the collection, removal or transportation of solid waste.

22. **Source-Separated Material** shall mean recyclables that have been separated or kept separate from other solid waste at the point of generation and sorted by material type, such as wood, metal, glass, concrete, or organics, without being commingled with other solid waste, including recyclables. To qualify as source-separated material, each type of material must be transferred in a separate container to a recycling center.

Sec. 3. Section 66.00.1 of the Los Angeles Municipal Code is retitled to read as follows:

SEC. 66.00.1. SOLID WASTE SERVICES.

Sec. 4. Section 66.00.1(a)(1) of the Los Angeles Municipal Code is amended to read as follows:

1. The collection of household solid waste combined in one or more containers by a single pickup except when more than one pickup is required by the Board and approved by Council resolution, on a regularly scheduled basis, but not to provide for the collection of commercial solid waste.

Sec. 5. Section 66.00.1(b) of the Los Angeles Municipal Code is amended to read as follows:

(b) It is the policy of the City of Los Angeles to dispose of solid waste collected by the City, including metals, in land reclamation sites owned and operated or otherwise controlled by the City or in City-owned incinerators when economically feasible, or by contractual arrangement where appropriate. Contractual arrangements involving consideration in excess of \$5,000 shall be approved by the Council by ordinance or resolution, except in the case of an emergency as determined by the Director.

Sec. 6. Section 66.00.1(e) of the Los Angeles Municipal Code is amended to read as follows:

(e) The Board shall adopt rules and regulations, not inconsistent with this Article, to effectuate the purposes and intent of this Section and the further provisions of this Article. Any such rule or regulation pertaining to solid waste collection shall be approved by the Council.

Sec. 7. Section 66.00.1(f) of the Los Angeles Municipal Code is amended to read as follows:

(f) The Board, subject to the approval of the Council in each instance by resolution, may from time to time institute and conduct one or more pilot programs within an area or areas of the City designated by the Board for the separate collection and disposal of solid waste on a regularly scheduled basis, for the purpose of studying costs to the City and other factors of such program or programs compared with the policies set forth in Subsection (a) of this Section.

Sec. 8. Section 66.01 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.01. SOLID WASTE COLLECTION.

No person shall remove or convey any solid waste upon or along any street in this City, provided, however, that the provisions of this section shall not apply to any person in the employ of this City who shall be assigned by the Board to the work of solid waste disposal or to any person with whom this City has entered into, or may hereafter enter into, a contract for the collection, removal and disposal of solid waste or to any employee of such contractor during the time his contract shall be in force, and provided further that solid waste collection and disposal contractors serving neighboring municipalities, County sanitation districts, State or Federal institutions, or any person in the employ of any such governmental agency may haul garbage over the streets of this City after having first obtained a permit therefor pursuant to Section 66.32, *et seq.*

Sec. 9. Section 66.01.1 of the Los Angeles Municipal Code is hereby repealed.

Sec. 10. Section 66.02 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.02. SOLID WASTE CONTAINER SPECIFICATIONS.

It shall be the duty of every owner, manager, or person in possession, charge or control of any commercial establishment, and every person occupying a residential premises within the City to provide, and at all times to keep containers for holding solid waste. Each container shall be constructed to be nonabsorbent, watertight, vector-resistant, durable, easily cleanable, and designed for safe handling. Each such container and its cover shall be made of such materials as may be approved for such use by the Board and by the City Council. The cover shall not be removed except when necessary to place solid waste therein or to remove solid waste therefrom. Each container and its cover shall be kept cleaned on the outside from accumulating grease and decomposing material and shall be of an adequate size and in sufficient numbers to contain, without overflowing, all the solid waste that a household or other establishment generates within the designated removal period. Each such container when filled shall not exceed reasonable lifting weights for an average physically fit individual except where mechanical loading systems are used. Any such vessel, tank or receptacle shall comply with Part 1301 of Title 16 of the Code of Federal Regulations to the extent that such Part is applicable to any such vessel, tank or receptacle.

Sec. 11. Section 66.03 is added to the Los Angeles Municipal Code to read as follows:

SEC. 66.03. SOLID WASTE SERVICE REQUIRED.

(a) No person shall keep any solid waste, or allow any solid waste, excluding organics used for composting or mulch, to remain upon any premises within the City for more than seven days. All solid waste shall be placed in containers that meet the requirements of Section 66.02.

(b) Owners of commercial establishments and multifamily dwellings or the generator of solid waste at such premises or the agent of the owner or generator shall subscribe to and pay for collection services provided by a solid waste hauler authorized to provide such services pursuant to the provisions of this Article.

(c) The minimum level of service to which the owner, generator or agent shall subscribe shall be the number and size of solid waste containers suitable for garbage collection and the frequency of collection which is necessary for the removal and disposal of all solid waste generated at the premises, excluding commingled recyclables and source-separated material, in a seven-day period. Such minimum level of service shall be determined by the owner, generator or agent and the solid waste hauler. In the event the owner, generator or agent and the solid waste hauler do not agree on the minimum level of service necessary, such determination shall be made by the Director.

(d) All commercial establishments shall have collection services for source-separated materials or commingled recyclables.

Sec. 12. Sections 66.04, 66.06 and 66.07 of the Los Angeles Municipal Code are hereby repealed.

Sec. 13. Section 66.08.1 of the Los Angeles Municipal Code is retitled amended to read as follows:

SEC. 66.08.1. SOLID WASTE DISPOSAL FACILITY FRANCHISES OR CONTRACTS.

Should the City at any time award a franchise or contract for the disposal of solid waste, then no person, other than the franchisee or contractor, shall thereafter be permitted to provide services covered by such franchise or contract within the granted franchise or contract area except as otherwise permitted by the Board.

Sec. 14. Section 66.08.2 of the Los Angeles Municipal Code is hereby repealed.

Sec. 15. Section 66.08.3 of the Los Angeles Municipal Code is retitled amended to read as follows:

SEC. 66.08.3. OPERATION OF SOLID WASTE DISPOSAL FACILITIES.

(a) It is unlawful for any person to own, establish, operate or carry on the business of a solid waste disposal facility in the City unless, at the City's sole option, such person has been granted a non-exclusive franchise by the City Council.

(b) Section (a) does not apply to any person who owns or operates a solid waste disposal facility operating as of January 1, 1999, under a valid conditional use permit or other authorizing permit issued by the City, until any one of the following events occurs:

- (1) the conditional use permit or other authorizing permit expires, or
- (2) the conditional use permit or other authorizing permit is renewed, or
- (3) the conditional use permit or other authorizing permit is modified.

Sec. 16. Section 66.08.4 of the Los Angeles Municipal Code is retitled to read as follows:

SEC. 66.08.4. SOLID WASTE DISPOSAL FRANCHISE TERMS AND CONDITIONS.

Sec. 17. Section 66.08.5 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.08.5. SOLID WASTE DISPOSAL FACILITY FRANCHISE FEES.

The City shall impose a franchise fee each year equal to 12 percent of the annual gross receipts from fees and charges collected by the operator of the solid waste disposal facility.

Sec. 18. Section 66.08.6 of the Los Angeles Municipal Code is retitled to read to read as follows:

SEC. 66.08.6. OTHER SOLID WASTE DISPOSAL FACILITY FRANCHISE PROVISIONS.

Sec. 19. Sections 66.09 and 66.10 of the Los Angeles Municipal Code are hereby repealed.

Sec. 20. Section 66.17.1 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.17.1. PROOF OF SOLID WASTE COLLECTION SERVICE.

Irrespective of any other provision of this Code, the manager or person in charge of, or in control of, any solid waste of any residential premises or commercial establishment shall furnish written proof, whether in the form of contracts or receipts, to any appropriate municipal authority on request that said premises maintains collection services that collects solid waste generated from said premises in a manner in keeping with current health regulations and in compliance with the requirements of this Article and other provisions of the Los Angeles Municipal Code.

Sec. 21. Sections 66.18 through 66.22 of the Los Angeles Municipal Code are hereby repealed.

Sec. 22. Section 66.23 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.23. SOLID WASTE VEHICLES – USE OF STREETS.

(a) No person shall permit any vehicle hauling or used for hauling or carrying any solid waste or other nauseous or offensive substance to remain in or upon any street longer than is necessary for loading and hauling such substance to its destination or permit any such vehicle to be in a filthy or offensive condition, or to remain uncovered when in transit upon streets or near public places.

(b) No person shall remove or convey any solid waste or other nauseous or offensive substance along any street, except in watertight vessels, receptacles or carriers.

Sec. 23. Section 66.24 of the Los Angeles Municipal Code is amended to read as follows:

SEC. 66.24. REPLACING FALLEN MATERIAL.

No person removing or conveying any solid waste shall fail, refuse or neglect to replace immediately in any container any solid waste that shall have fallen therefrom, in or upon any street or in or upon any premises.

Sec. 24. Section 66.25 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.25. DEPOSITING SOLID WASTE ON STREETS OR IN THE LOS ANGELES RIVER PROHIBITED.

(a) No person shall deposit or cause to be deposited any solid waste of any kind whatsoever upon or in any street, or upon any premises in this City, or in the Los Angeles River.

(b) Any person whose identifying information is found in or who is otherwise responsible for the deposit of solid waste of any kind whatsoever, upon or in any street, shall be responsible for depositing it on the public right-of-way and shall be subject to administrative penalties as defined in Subsection (c).

(c) The first violation of Subsection (b) in a calendar year is subject to warning or an administrative monetary penalty not to exceed \$500.00. Subsequent violations in the same calendar year will result in a second penalty not to exceed \$750.00 for the second violation after receiving the initial \$500.00 penalty. The penalty for the third administrative violation in a calendar year is \$1000.00. More than three administrative fines in one calendar year shall result in the violation being charged as a misdemeanor in Superior Court and subject to all penalties applicable to criminal violations. The Bureau is authorized to assess a processing fee established by the Board for all citations with an administrative monetary penalty. All noncriminal enforcement actions are subject to the administrative hearing process as mandated in the California Government Code Section 53069.4, as now existing and as may be amended.

Sec. 25. Section 66.26 of the Los Angeles Municipal Code is hereby repealed.

Sec. 26. Section 66.27 of the Los Angeles Municipal Code is amended to read as follows:

SEC. 66.27. RULES AND REGULATIONS – EFFECT OF NON-COMPLIANCE WITH.

The collection of solid waste not prepared and placed for collection in accordance with the rules and regulations adopted by the Board may be rejected by the City.

Sec. 27. Section 66.28 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.28. SOLID WASTE – TAMPERING WITH.

No person, other than the owner thereof, his agents or employees, or an officer or employee of this City or any person holding a contract with this City for the collection, management and/or disposal of solid waste, shall tamper with or remove any solid waste, solid waste container or the contents thereof from any location where the same had been placed by the owner thereof or his agent, whether or not such container conforms to requirements or description set forth in the rules and regulations of the Board.

Sec. 28. Section 66.29 of the Los Angeles Municipal Code is retitled and amended to read as follows:

SEC. 66.29. CITY EMPLOYEES – USE OF SOLID WASTE.

No employee of this City shall remove or dispose of, for said employee's individual use or benefit, any of the contents of any container used for the collection, removal or disposal of solid waste.

Sec. 29. Section 66.30 of the Los Angeles Municipal Code is amended to read as follows:

SEC. 66.30. CONSTRUCTION OF ARTICLE.

Nothing contained in this Article shall be deemed to conflict with any section of this Code regulating the collection, removal or disposal of solid waste, but any such sections of this Code and any law shall each be so construed as to give effect to every provision thereof and each shall be deemed to be independent of the other.

Sec. 30. Section 66.32 of the Los Angeles Municipal Code is retitled amended to read as follows:

SEC. 66.32. PURPOSE.

In order to meet the diversion goals of AB 939 and the City of Los Angeles which is Zero Waste by 2025, solid waste haulers, contractors and recyclers shall register with the City to obtain a permit. As used in this Section and in Sections 66.32.1 through 66.32.5, the following terms shall have the meanings set forth below:

1. **AB 939** shall mean the State of California's Integrated Waste Management Act of 1989, as may be amended from time to time, and as set forth in California Public Resources Code Sections 40050, *et seq.*, and implementing regulations of the Department of Resources Recycling and Recovery (CalRecycle).
2. **AB 939 Compliance Permit** shall mean a permit issued pursuant to the provisions of Subsection (a) of Section 66.32.1.
3. **Appellant** shall mean a person who files a written request for a hearing pursuant to the provisions of Subdivision (1) of Subsection (d) of Section 66.32.3 of this Article.
4. **Certified Construction and Demolition Waste Processing Facility** shall mean a waste processing facility, operating lawfully pursuant to all applicable permits and possessing valid and current certification from the City of Los Angeles, that accepts construction and demolition waste for the purpose of recovering reusable and recyclable materials and disposing of non-recyclable residual materials.

5. **Contractor** shall mean any Person who enters into a contract for any construction or demolition project that requires a permit from the Department of Building and Safety.

6. **Permittee** shall mean a person issued an AB 939 Compliance Permit pursuant to the provisions of Subsection (a) of Section 66.32.1.

Sec. 31. Section 66.33 is added to the Los Angeles Municipal Code to read as follows:

SEC. 66.33. PURPOSE .

Under the City's RENEW LA Plan, the City committed reaching Zero Waste by diverting 70% of the solid waste generated in the City by 2013, diverting 90% by 2025, and becoming a zero waste city by 2030. State law currently requires at least 50% solid waste diversion and establishes a state-wide goal of 75% diversion by 2020. Moreover, state law requires mandatory commercial recycling in all businesses and multifamily complexes and imposes additional reporting requirements on local agencies, including the City. In order to meet these requirements and goals, increasing recycling and diversion in the commercial and multifamily waste sectors is imperative. The commercial and multifamily sectors produce most of the City's solid waste. Currently, a significant amount of commercial and multifamily solid waste generated in the City, including recyclables and organics, is going to landfills, resulting in unnecessary greenhouse gas emissions. The City has a responsibility under state law to ensure effective and efficient waste and recycling service for its businesses and residents. It will most successfully fulfill that responsibility, and also meet its own Zero Waste policy goals, by ensuring that its solid waste, including recyclables and organics, are collected, transported and processed in a manner that reduces environmental and social impacts on the City and the region.

An exclusive, competitive franchise system for the collection, transportation and processing of commercial and multifamily solid waste will aid the City in meeting its diversion goals by, among other things: (i) requiring franchisees to meet diversion targets; (ii) increasing the capacity for partnership between the City and solid waste haulers; (iii) allowing the City to establish consistent methods for diversion of recyclables and organics; (iv) increasing the City's ability to track diversion, which will enable required reporting and monitoring of state mandated commercial and multifamily recycling; (v) increasing the City's ability to ensure diversion quality in the processing facilities handling its waste and recyclables; and (vi) increasing the City's capacity to enforce compliance with federal, state, county, and local standards.

An exclusive, competitive franchise system will also have other beneficial effects, including reducing adverse environmental impacts such as unnecessary solid waste truck traffic, emissions and street impacts, protecting ratepayers, ensuring high customer service standards, and increasing solid waste hauler accountability.

While the move to an exclusive franchise system will generate many benefits for the City and its residents, it will also increase the risk that a labor dispute will interfere with collection services. To protect the City's interest in efficient and uninterrupted collection services, the City will require franchisees to produce evidence that they are parties to written, enforceable agreements that prohibit labor organizations and their members from engaging in picketing, work stoppages, boycotts or other economic interference with collection services.

SEC. 66.33.1. DEFINITIONS.

As used herein and in Sections 66.33 to 66.33.17, the following terms shall have the meanings set forth below:

1. **Clean Fuel Vehicles** shall mean those vehicles that meet or exceed the requirements of Southern California Air Quality Management District Rule 1193, as now existing and as may be amended.

2. **Customer** shall mean any individual, firm, partnership, joint venture, association, fraternal organization, corporation, estate trust, business trust, receiver, trustee, executor, administrator, syndicate, the United States, any state, any county, city and county, municipality, district or other political subdivision of any state or of the United States, or any other group or combination acting as a unit.

3. **Franchise Agreement** shall mean a written contract between the Bureau and a franchisee setting forth the terms and conditions under which the franchisee shall perform collection services in the City.

4. **Franchisee** shall mean a solid waste hauler granted an exclusive franchise to provide collection services in a franchise zone.

5. **Franchise Zone** shall mean a geographic area of the City within which a franchisee shall provide collection services pursuant to the terms of a franchise agreement.

6. **Labor Peace Agreement** shall mean an enforceable agreement between a franchisee, or a franchisee's subcontractor, and a labor organization (as defined by 29 U.S.C. §152(5)) that represents or seeks to represent the franchisee's or subcontractor's employees providing collection services and that contains provisions under which the labor organization for itself and its members agrees to refrain from engaging in any picketing, work stoppages, or any other economic interference with the franchisee's performance of collection services.

7. **On-location Filming Waste** shall mean solid waste generated and collected at a commercial film production permitted pursuant to Section 12.22 A.13. of this Code or Section 22.350 of the Los Angeles Administrative Code.

8. **Studio** shall mean one or more adjacent parcels of real property occupied by a motion picture or television production and distribution enterprise and containing sound stages totaling no less than 50,000 square feet in area and 18 feet in height designed for motion picture or television production and utilized by that enterprise specifically for such purpose.

SEC. 66.33.2. EXCLUSIVE FRANCHISE FOR COLLECTION SERVICES.

(a) The City may award contracts for collection services for commercial establishments and multifamily dwellings through an exclusive franchise agreement authorizing and obligating the holder to provide collection services within a franchise zone.

(b) A franchisee's exclusive right to provide collection services shall not include the right to collect the following materials, the collection of which is not prohibited by this Article:

- (1) Solid waste removed from a commercial establishment or multifamily dwelling by a self hauler;
- (2) Construction and demolition waste;
- (3) Solid waste collected by the City;
- (4) On-location filming waste.

(c) Any franchisee may contract with a studio for collection services regardless of the franchise zone where the studio is located.

SEC. 66.33.3. UNLAWFUL ACTIVITIES.

(a) Provision of Collection Services.

Except as provided in Sections 66.33.2(b) through (c) and Section 66.33.3(b), it is unlawful for any person to provide collection services to a commercial establishment or multifamily dwelling within a franchise zone unless a written franchise agreement therefor has been executed between such person and the City, and such agreement is in full force and effect.

(b) Transition Period.

The City, in its sole discretion and consistent with state law, may authorize a solid waste hauler possessing a valid permit issued pursuant to Section 66.32, *et seq.*, to continue providing collection services in a franchise zone to the extent necessary to meet the needs of any customer in that zone until the franchisee is able to perform the collection services.

SEC. 66.33.4. FRANCHISE ZONES.

The Bureau shall divide the territory within the City into eleven (11) franchise zones, the designation of which shall be subject to the approval of the Board and City Council. Three (3) of the franchise zones shall be designed as "single" zones, which shall not be granted in combination with any other franchise zone.

SEC. 66.33.5. FRANCHISE AGREEMENT FEES.

The Bureau shall include in each franchise agreement a negotiated annual franchise fee to be paid to the City by the respective franchisee.

SEC. 66.33.6. MINIMUM FRANCHISE AGREEMENT STANDARDS.

The following minimum standards shall apply to all franchises granted under this part, and shall be made binding terms of all franchise agreements:

(a) **Required Collection Services.**

During the term of the franchise agreement and subject to its terms and conditions, each franchisee shall collect, transport, and deliver for processing or disposal all solid waste generated at all commercial establishments and multifamily dwellings located within that franchise zone.

(b) **Clean Fuel Vehicles.**

All vehicles used by a franchisee to provide collection services under a franchise agreement shall at all times be in compliance with all applicable air pollution control laws and regulations, including but not limited to the California Air Resources Board "Diesel Particulate Matter Control Measure for On-Road Heavy Duty Residential and Commercial Solid Waste Collection Vehicle Diesel Engines" and South Coast Air Quality Management District Amended Rule 1193.

(c) **Labor Peace Agreement.**

As a condition for the grant of a franchise agreement, a condition precedent to any franchisee or subcontractor performing collection services, and as an ongoing, material condition of the franchise agreement, each franchisee shall provide satisfactory evidence that it, and any subcontractor who will provide collection services, are a party to labor peace agreement(s) with any labor organization that represents any group of the franchisee's or subcontractor's employees who are or will be involved in providing collection services, and with any labor organization that seeks to represent any group of a franchisee's or subcontractor's employees who are or will be involved in providing collection services, under the following limitation:

(1) This Subsection does not require an employer to recognize a particular labor organization.

(2) This Subsection does not require an employer to enter into a collective bargaining agreement establishing the substantive terms and conditions of employment.

(3) This Subsection is not intended to, and shall not be interpreted to, enact or express any generally applicable policy regarding labor/management relations, or to regulate those relations in any way.

(4) This Subsection is not intended to provide a preference for any outcome in the determination of employee preference regarding union representation.

(d) Processing and Disposal.

A Franchisee shall deliver all recyclables and organics collected from commercial establishments and multifamily dwellings exclusively to facilities certified by the City pursuant to Section 66.33.8.

(e) Diversion.

(1) Each franchisee shall provide every customer within its franchise zone a container specifically designated for the collection of recyclables.

(2) Each franchisee shall offer every multifamily dwelling within its franchise zone a container specifically designated for the collection of organics.

(3) All franchise agreements shall require franchisees to meet specific landfill disposal reduction requirements.

(f) Compliance with Living Wage and Responsible Contractor Requirements.

Each franchisee shall comply with all requirements of an "Employer" under the City's Living Wage Ordinance, Los Angeles Administrative Code Section 10.37, et. seq. Each franchise agreement is hereby deemed a "contract" for purposes of the City's Responsible Contractor Program, Los Angeles Administrative Code Section 10.40, et seq., and each franchisee shall comply with all requirements of a "Contractor" thereunder.

(g) Whistleblower Protection.

A franchisee shall not retaliate against an employee who, in good faith, has made a protest or raised a complaint against some practice of the franchisee on the basis of a

reasonable belief that the practice is in violation of any provision of this Article or other applicable laws. A franchisee will not retaliate against an employee who discloses or threatens to disclose to a supervisor or to the City or another public body any activity, policy, or practice of the franchisee that the employee reasonably believes is in violation of this Article or other applicable laws.

SEC. 66.33.7. REVENUE FROM SALE OF RECYCLABLES.

The Bureau and franchisees shall negotiate, and all franchise agreements shall include, provisions addressing revenue sharing from the sale of recyclables by franchisees and processing facilities.

SEC. 66.33.8. CERTIFICATION OF PROCESSING FACILITIES.

(a) The Board may certify for a five-year period facilities to accept solid waste collected by franchisee's providing collection services under a franchise agreement under criteria established by the Bureau and approved by the Board. Facilities shall be inspected by the City prior to certification, and each certification shall be conditioned on the facility granting the City the right to inspect the facility during the period of certification to verify compliance with the terms of certification.

(b) The City may suspend or revoke certification of a facility upon 30 days notice by issuance of a notice of suspension or notice of revocation, if the facility fails to comply with any of the terms and conditions specified in the certification or in this Code, under the process set forth in Section 66.32.3(d).

SEC. 66.33.9. PERMIT REQUIREMENT.

Nothing in Sections 66.33 through 66.33.8 relieves any franchisee from the requirement to obtain and maintain a permit pursuant to Sections 66.32 through 66.32.5 of this Article or any other permit or license otherwise required by law for the provision of such services.


SEC. 66.33.10. SEVERABILITY.

If any part or provision of this Section or the application of this Section to any person or circumstance is found to be unconstitutional or otherwise invalid by any court of competent jurisdiction, the remainder of this Section, including the application of such part or provisions to other persons or circumstances, shall not be affected by such holding and shall continue in full force and effect, and to this end, the provisions of this Section are severable.


Sec. 32. The City Clerk shall certify to the passage of this ordinance and have it published in accordance with Council policy, either in a daily newspaper circulated in the City of Los Angeles or by posting for ten days in three public places in the City of Los Angeles: one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall; one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall East; and one copy on the bulletin board located at the Temple Street entrance to the Los Angeles County Hall of Records.

I hereby certify that the foregoing ordinance was introduced at the meeting of the Council of the City of Los Angeles APR 0 1 2014, and was passed at its meeting of APR 0 8 2014.

HOLLY L. WOLCOTT, Interim City Clerk

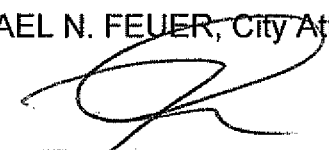
By 
Deputy

Approved 4/15/14


Mayor

Approved as to Form and Legality:

MICHAEL N. FEUER, City Attorney

By 
JOHN A. CARVALHO
Deputy City Attorney

Date 3/14/14

File No. 10-1797-316

DECLARATION OF POSTING ORDINANCE

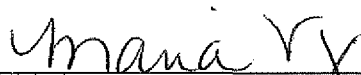
I, MARIA VIZCARRA, state as follows: I am, and was at all times hereinafter mentioned, a resident of the State of California, over the age of eighteen years, and a Deputy City Clerk of the City of Los Angeles, California.

Ordinance No. 182986 – Citywide Exclusive Franchise System for the Municipal Solid Waste Collection and Handling Program - a copy of which is hereto attached, was finally adopted by the Los Angeles City Council on **April 8, 2014**, and under the direction of said City Council and the City Clerk, pursuant to Section 251 of the Charter of the City of Los Angeles and Ordinance No. 172959, on **April 18, 2014** I posted a true copy of said ordinance at each of the three public places located in the City of Los Angeles, California, as follows: 1) one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall; 2) one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall East; 3) one copy on the bulletin board located at the Temple Street entrance to the Los Angeles County Hall of Records.

Copies of said ordinance were posted conspicuously beginning on **April 18, 2014** and will be continuously posted for ten or more days.

I declare under penalty of perjury that the foregoing is true and correct.

Signed this **18th** day of **April, 2014** at Los Angeles, California.



Maria Vizcarra, Deputy City Clerk

Ordinance Effective Date: **May 28, 2014**
Rev. (2/21/06)

Council File No. **10-1797-S16**

PORTLAND, OREGON CASE STUDY ATTACHMENTS



Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.

City of Portland 2015 Recycling Program Summary

Last Update: August 13, 2015

General

- Population: 609,456 (per 2013 Census)
- Square Miles: 145
- City Recycling Goal: 75% by 2015 (adopted in 2006)
- Overall Recycling Rate: 70%
 - Residential Recycling Rate: 63%
 - Commercial Recycling Rate: 71%

Collection and Processing

- All waste and recycling collection is conducted by 37 private haulers regulated by the City of Portland Bureau of Planning and Sustainability (BPS). All customers pay their haulers directly for collection services.
- Portland significantly revamped its residential program in 2011 to include weekly collection of food scraps and switched garbage collection to an every-other-week basis.
- Haulers deliver garbage to local transfer stations and most of it is then sent to Columbia Ridge Landfill, located 150 miles away, operated by Waste Management through contracts with Metro, the regional government. The current tip fee at Portland transfer stations is \$94.98/ton, plus a \$12.00 transaction fee.
- Haulers deliver recyclables for processing at over 80 facilities; the top ten receive ~ 75% of the recyclables. Eight of the facilities are material recovery facilities (MRFs).
- Metro, the regional government, maintains a database of all drop-off locations for recycling and composting. Residents and businesses can access this info by calling 503-234-3000 Monday thru Saturday. Metro also posts a list of almost 70000 sites on their website in a “Find a Recycler” searchable database.
- In Portland’s solid waste and recycling system, “residential” includes all single-family through four-unit dwellings. “Commercial” includes all multi-family dwellings (5 units or greater) and businesses.
- Residential customers are serviced by 15 franchised haulers. These haulers have exclusive service areas, and rates are set by the City. In contrast, commercial collection is provided in an open, competitive market (37 haulers, plus a number of independent recyclers, or companies that collect recycling, yard debris, and food scraps, but not garbage).
- 73% of garbage is generated by commercial, 27% by residential customers.



City of Portland, Oregon | Bureau of Planning and Sustainability | www.portlandoregon.gov/bps
1900 SW 4th Avenue, Suite 7100, Portland, OR 97201 | phone: 503-823-7700 | fax: 503-823-7800 | tty: 503-823-6868

Printed on 100% post-consumer waste recycled paper.

Portland Recycles! Plan

In June 2006, Portland City Council directed BPS to develop a new waste prevention and recycling plan. The resulting plan, *Portland Recycles! A New Waste Prevention and Recycling Plan for Portland*, has four main goals: to increase the recovery rate to 75% by 2015, to reduce toxics and greenhouse gases, to have zero growth in the waste stream, and to make the system as a whole more sustainable. The plan included changes for both the residential and commercial systems.

The plan's proposed changes for the residential system occurred in two phases over the span of seven years.

Phase One for the residential system (2008-2009) introduced a new recycling roll cart for commingled recyclables and a separate yard debris roll cart. A monthly rate increase of \$2.60+ offset the costs of the new carts.

Phase Two for the residential system (2011) consisted of significant changes to residential curbside collection, including the addition of food scraps to yard debris and a collection frequency switch between yard debris/food scraps and solid waste. Composting and recycling collection are weekly and solid waste collection is every other week or every four weeks.

Changes to the commercial system require businesses to recycle, focusing primarily on food scraps, paper, and construction materials. The Portland Recycles! Plan included new recycling requirements for businesses for these target materials while maintaining the competitive system for waste hauling services. Waste hauling companies are required to offer their business customers collection services to meet the requirement, including collection of the materials subject to mandatory recycling.

City Council approved the residential, waste prevention and city operations portions of the plan in August 2007. The commercial system changes were approved in April 2008.

Recovery Rate Calculation

In addition to the many residential materials recycled curbside in Portland, there are other materials recycled by other means and counted in Portland's recovery rate (see Appendix for a complete list of eligible materials).

In calculating the City's recovery rate, City staff track quantities on the residential side including hauler-reported curbside recycling and composting and estimates of bottle bill recycling. Residential solid waste disposed includes amounts reported by franchisees as well as estimates for self-hauled garbage.

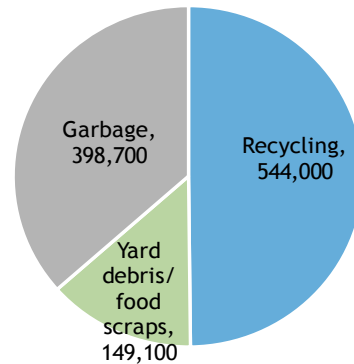
On the commercial side, recycling tonnages include materials collected by haulers and material sorted at recovery facilities, as well as a jobs-based estimate of material collected via independent recyclers that is reported to the State Department of Environmental Quality (DEQ). Commercial solid waste disposal tonnages are computed by adding tonnages of waste reported by haulers, residue at recovery facilities, and estimates of material that is self-hauled to transfer stations.

The residential and commercial tons are then combined to get an overall recycling rate. In order to align with Metro and the DEQ's calculation methodology, additional recovery credits, at 2% for each activity, are then added for home composting, waste prevention and reuse activities. For a wasteshed to achieve the maximum of 6% for a particular year, DEQ must approve each local wasteshed's documentation.



Total Recycling	544,000 tons
Total Yard Debris/Food Scraps	149,100 tons
Total Solid Waste	398,700 tons
Total Generation	1,091,800 tons
Recovery Rate	64%
With 6% credits	70%

Tons Collected 2014



For more info on recovery rate calculations, contact Bruce Walker at 503-823-7772, bruce.walker@portlandoregon.gov.

Regulatory Framework & Compliance

Oregon state law requires communities of more than 4,000 to have a curbside recycling program (1983 Opportunity to Recycle Act). In Portland’s residential sector, there is no requirement that residents participate in the recycling program; however, it is estimated that more than 90% of residential customers recycle. Even before the City began to regulate residential rates in 1992, Portland has always had a “pay-as-you-throw” (PAYT) rate system which provides a direct financial incentive for reducing a household’s garbage.

According to current Portland City Code, all commercial businesses are required to recycle. In addition, Oregon state law mandates that a hauler cannot charge more for recycling than would be charged for the same quantity of garbage pick-up. While the City does not currently receive reports of the number of businesses participating in the mandatory program, it is estimated that 85-90% of the commercial sector participates in recycling to some extent.

Though it is stipulated in Portland’s Commercial Administrative Rules that failure to implement a recycling system is an Infraction, subject to a penalty of up to \$600 for non-compliance, the City focuses primarily on education and outreach efforts. City regulations do not provide for penalties unless a business has refused to comply by 30 days after being notified. Enforcement has historically been complaint-based and penalties have rarely been levied because businesses typically respond within the 30 days.

Residential Sector

- ✓ 159,460 households - single-family through fourplexes - are signed up for curbside garbage, recycling, and yard debris service
- ✓ Sign-up is voluntary, except for rental dwellings
- ✓ Composting and recycling are collected weekly, both on the same day; solid waste is collected every other week for most; every-fourth-week collection is also an option.
- ✓ 90%+ participation in recycling
- ✓ Each household is given a blue 65 gallon roll cart for recycling and a green 65 gallon rollcart for composting.



Curbside Collection System

65-gallon Recycling Roll Cart

- Paper (Magazines, Newspapers, Cardboard, Scrap paper)
- Metal (Aluminum, Tin cans, Scrap metal)
- Plastics (Milk jugs, Bottles, Yogurt-type tubs, Potted plant containers and buckets)
- Roll cart supplied by hauler, costs included within basic rate

14-gallon Glass Bin

- Glass bottles and jars

On the side

- Motor oil in a see-through rigid container

65-gallon Composting Roll Cart

- Food scraps, food soiled paper towels and napkins, tea bags, coffee filters, pizza delivery boxes and kitchen pail liners including newspaper, paper bags and five approved brands of BPI-certified compostable bags
- Yard debris
- Roll cart supplied by hauler, costs included within basic rate

Rates currently paid by Residential Customers

- 15 franchised hauling companies operate within the City, each within an exclusive territory.
- Pay-as-you-throw (PAYT) volume-based rate schedule, reviewed and set annually by City Council (before City regulation, private haulers used PAYT system on their own)
- Over 70% of residential households subscribe at the 35 gallon service level or smaller.
- The most common service level (42% of households) is a 35-gallon roll cart, collected every other week. It includes weekly recycling and weekly composting collection. It is priced at \$29.35/month (broken out below):

	Rate Components
35 gallon rollcart collected every other week	
Solid Waste Collection Charge	\$ 3.12
Solid Waste Disposal Charge	\$ 2.73
Recycling Collection Charge	\$ 5.52
Organics Collection Charge	\$ 4.62
Organics Tipping Charge	\$ 2.69
General and Administrative Charge	\$ 6.16
Rollcart Depreciation, Interest & Maintenance	\$ 0.40
Operating Margin	\$ 2.65
Less: Recyclable Material Sales Revenue	\$ (0.02)
Franchise Fee	\$ 1.47
Rate	\$ 29.35



Commercial Sector

- ✓ 25,000 businesses
- ✓ Approximately 4,000 multifamily complexes (five or more units), totaling more than 90,000 households.
- ✓ 37 private, commercial permitted haulers collect commercial waste and recycling in a competitive system
- ✓ A number of independent recyclers are also registered with the City to collect source-separated recycling from businesses; they collect without charge or they may pay customers for the material collected.
- ✓ In Portland, businesses and multifamily complexes may choose their garbage hauler and recycler and negotiate prices for these services.
- ✓ Since 1996, businesses and multifamily complexes are required by City Code to recycle 50% of their waste. The Portland Recycles! Plan established a goal of 75%.
- ✓ If requested by a business, haulers must offer recycling collection for:
 - Food scraps
 - Cardboard
 - Glass bottles & jars
 - Newspapers and magazines
 - Mixed paper (including office paper, junk mail, aseptic boxes and cartons)
 - Plastic bottles
 - Scrap metal
 - Tin and aluminum cans
 - Yard debris
- ✓ The Portland Composts! commercial food scrap collection program began in 2005, with about 1200 businesses participating as of end of 2014.
- ✓ All Portland multifamily complexes are required to have recycling for a full range of residentially-generated materials.
 - For buildings with 5 or more units, City rules require a two-sort recycling system of commingled recycling and glass containers. Recycling containers must be as conveniently-located as garbage containers with clear signage.
 - The landlord/manager must provide written recycling information to all residents at least once per year and to all new residents within 30 days of their move-in.

Commercial Customer Rates

Since the commercial sector is a competitive marketplace, the City has no information on the rates that haulers charge commercial customers.

Training & Outreach

Commercial organizations

Portland's Sustainability at Work program provides assistance, resources and recognition to businesses in the City. The program features sustainability advisors that can come on-site to complete a comprehensive sustainability assessment, highlighting opportunities for more efficient commuting and energy and water use as well as increased sustainable purchasing, waste prevention, recycling, and food scrap collection. In a typical year, the program serves 1,000 businesses.

Since 2005, businesses in the City of Portland have been able to contract with waste haulers to collect food scraps through the Portland Composts! program. Sustainability at Work provides technical



assistance, training for employees, and free resources like posters and stickers for labeling collection sites.

A multifamily program team provides outreach to multifamily complexes to assist them to transition to a well-functioning program. Many educational materials are available for property managers to order, including tenant door bags with refrigerator magnets and information, common area posters, and metal signs to hang above recycling containers.

Hotline

BPS staff answer calls received on the Portland Curbside Hotline (503-823-7202) from 8 a.m. to 5 p.m., Monday through Friday. This phone service provides information on both the residential curbside and commercial collection programs. BPS Hotline staff also offer email responses via wasteinfo@portlandoregon.gov. Callers to the Hotline and email correspondents are typically seeking information about residential or commercial recycling or garbage collection, but Hotline staff also handle complaints. In most cases customers and haulers are able to address issues on their own, but unresolved problems are passed on to BPS enforcement staff for investigation. In a typical year, about 15,000 calls and 1,800 emails are received.

Residential

BPS produces and mails the *Curbsider* to all residential garbage customers twice a year, in June and December. This full-color newsletter publicizes program information or changes.

BPS also houses the regional Master Recycler Program. This is a community education project to raise awareness of waste-related issues and ways to reduce waste through prevention, reuse, recycling, and composting. The program consists of an eight-week training (one night per week plus a couple of Saturday field trips) for interested community members. Upon completion of the training, each graduate must volunteer at least 30 hours to raise awareness of waste prevention in the community through education and outreach at local events and through individual projects. Master Recyclers have volunteered at Fix-It Fairs, regional compost demonstrations and bin sales, hazardous household waste roundups, computer recycling events, farmers' markets, workplace fairs, and many other events.

Events

BPS provides assistance for event recycling at all major events at Portland's downtown Waterfront Park and other community events as requested.

Office Organization & Funding

City Solid Waste and Recycling Staff

22 full-time positions

✓ Management	2
✓ Communications	1
✓ Customer and Regulatory Services	5
✓ Program Development and Planning	3
✓ Sustainability at Work (business)	7
✓ Public Education and Outreach	4
○ 2 Residential	
○ 1 Multifamily / Events	
○ 1 Master Recycler program	



Budget & Fees

The City collects a franchise fee from its “residential” haulers and both permit and tonnage fees from its “commercial” haulers. The annual revenue of approximately \$3.5 million is a dedicated to a Solid Waste Management Fund, managed by BPS. This does not include any hauler operating costs.

The “residential” franchise fee is 5% of gross residential revenue received by the franchisees. The commercial permit fee is \$350/year, and the commercial tonnage fee (\$8.30/ton) is assessed on tonnage of waste collected from commercial accounts within Portland. The Solid Waste Management Fund is dedicated solely to “implement and administer Solid Waste, recycling, composting and sustainable development policies approved by the Council,” and is not mixed with Portland’s “general fund” monies.

Other

In 1971, Oregon adopted the nation’s first Bottle Bill and the current redemption rate is approximately 70% of affected beer, soft-drink containers, and water bottles.

In 1990, Portland City Council banned the use of polystyrene foam containers for takeout food and food served on restaurant or food vendor premises, including grocery stores.

In 2011, Portland City Council banned plastic bags as checkout bags. Since 2012, the ban has included all retailers and food providers.

In the Portland area, a regional government agency, Metro, plays an important role in waste management. In addition to other activities, Metro has authority over all waste upon collection, owns two major local transfer stations and operates a centralized recycling and waste prevention information service by phone and website/email (mentioned above under drop-off info).

The Oregon Department of Environmental Quality is responsible to ensure that all local governments implement programs that achieve the recycling goals set by the state legislature.

Appendix

Categories of materials counted toward recycling in Portland:

- Antifreeze
- Appliances
- Carpet and carpet padding
- Christmas trees
- Electronics
- Food scraps
- Glass - window/non-container glass
- Glass containers
- Gypsum wallboard (drywall)
- Milk cartons and aseptic containers
- Metal containers
- Motor oil
- Newsprint and magazines
- OCC & Kraft bags
- Office pack/hi grade paper
- Oil filters
- Phone directories
- Plastic bottles and tubs
- Plastic film
- Roofing/tarpaper
- Salvage & used building materials
- Scrap metal
- Scrap paper
- Tires
- Wood/lumber
- Yard debris





Effective Date: August 1, 2014

ADMINISTRATIVE RULES
Business Solid Waste, Recycling and Composting

TABLE OF CONTENTS

Table with 2 columns: Section Title and Page Number. Includes sections like Scope of Rules, Adoption and Revision of Administrative Rules, Residential Standards, Commercial Standards, Business Standards, and Index.

*For additional copies, for copies of the rules governing Residential collection, Commercial collection, for any electronic copies, or large-type copies, contact the Bureau of Planning and Sustainability at 503-823-7202, or email wasteinfo@portlandoregon.gov

PART 1.0, SCOPE OF RULES

Administrative rules contained within this document are intended to articulate the standards and expectations for business solid waste, recycling and composting collection as authorized in the City Code, Chapter 17.102.

PART 2.0, ADOPTION AND REVISION OF ADMINISTRATIVE RULES

- A. Director's Authority to Adopt Rules. Under authority of the City Code, Chapter 17.102, the Director of the Bureau of Planning and Sustainability [*hereinafter* Director] is authorized to adopt rules, procedures and forms to implement provisions of that chapter which regulate the collection and disposal of commercial solid waste, compostables and recycling in the City of Portland.
- B. Adoption and Revision of Rules.
1. Any rule adopted or revised according to the authority of the City Code shall require a public review process. Not less than ten or more than thirty days before such public review process, notice shall be given by publication in a newspaper of general local circulation. Such notice shall include the place, time, and purpose of the public review process and the location at which copies of the full set of the proposed rules may be obtained.
 2. The Bureau of Planning and Sustainability (BPS) shall give notice of the public review process to all neighborhood associations that are recognized by the City Office of Neighborhood Involvement (ONI) and all neighborhood business associations that are on ONI's mailing list. At least 60 days in advance of the anticipated adoption date, BPS shall notify those associations by regular mail or electronic mail of its intent to review the rules, and invite those associations to comment. BPS shall by regular mail or electronic mail send a notice of the initial public hearing to the same associations not less than ten days before the scheduled hearing.
 3. During the public review, the Director or the Director's designee shall hear testimony or receive written comment concerning the proposed rules. The Director shall review the recommendations, taking into consideration the comments received during the public review process and shall either adopt the proposal, modify or reject it.
 4. If a substantial modification is made, additional public review shall be conducted, but no additional notice shall be required if such additional review is announced at the meeting at which the modification is made. Unless otherwise stated, all rules shall be effective upon adoption by the Director and shall be filed in the Office of the Director.
 5. Notwithstanding paragraphs a., b., c. and d. of this section, an interim rule may be adopted by the Director without prior notice upon a finding that failure to act promptly will result in serious prejudice to the public interest or the interest of the affected parties, including the specific reasons for such prejudice. Any rule adopted pursuant to this paragraph shall be effective for a period of not longer than one year (365 days). Within five business days of the adoption of such interim rule, BPS staff shall send notice of the rule to all Neighborhood Associations, Neighborhood Business Associations, persons on the BPS list of parties interested in commercial administrative rules, and permittees, giving the language of the rule change, describing the purpose of the rule, and inviting comments to be sent to BPS

Part 5.0, Business Standards

Part 5.1, Definitions

See also Definitions in Portland City Code Section 17.102.020.

1. "**Assessment**" means a civil penalty assessed for an Infraction as provided in City Code Chapter 17.102 or in the franchise.
2. "**BPS**" means the Bureau of Planning and Sustainability.
3. "**Business**" is any commercial entity, including industrial and institutional, non profit organizations and government facilities, but not including multifamily complexes or commercial entities which occupy less than 50 percent of the floor area of a residence.
4. "**Calendar Quarter**" means the segment of a calendar year from January 1 through March 31, from April 1 through June 30, from July 1 through September 30 or from October 1 through December 31.
5. "**Collect**" or "**Collection**" means to accept, accumulate, store, process, transport, market or dispose of.
6. "**Commercial**" means relating to an entity that is non-residential in nature or, if residential, consists of five or more dwelling units.
7. "**Compostable Material**" and "**Compostable**" means primarily Food Scraps and includes coffee filters and BPI-certified compostable plastic liner bags.
8. "**Composting**" means the series of activities, including separation and processing, by which compostable materials are recovered from or otherwise diverted from the solid waste stream for controlled biological decomposition. Composting includes composting of source separated organics but not composting of mixed waste.
9. "**Customer**" means a person that has arranged the collection of solid waste, recyclable or compostable materials, excluding residential collection service covered by a franchise. Where several businesses share containers and service, customer refers only to the person that arranges for the service.
10. "**Day**" for purposes of designating an infraction, means a single infraction consists of the failure to comply with the rule any number of times during a single 24-hour period, regardless of the number of customers affected by the infraction (e.g., violating nighttime collection restrictions). Generally, Saturdays, Sundays and legal holidays are excluded.
11. "**Director**" means the Director of the Bureau of Planning and Sustainability, or the Director's authorized representative, designee or agent.
12. "**Disposal**" means landfilling, illegal dumping, burning, municipal waste incineration, and mixed waste composting.
13. "**Food Scraps**" means all waste from meats, fish, and vegetables, which attends or results from the storage, preparation, cooking, handling, selling, or serving of food for human consumption. Food scraps include, but are not limited to, excess, spoiled or unusable food or dairy products, meats, vegetable and meat trimmings, grains, breads and dough, incidental amounts of edible oils, and

organic waste from food processing. Food scraps do not include large amounts of oils and meats which are collected for rendering, fuel production or other reuse applications.

14. **"Food Scraps Generating Business"** means businesses and institutions whose waste is composed of a large amount of food scraps. It includes but is not limited to restaurants, grocery stores or food markets, hotels with catering operations, institutions with cafeterias, caterers, central kitchens or commissaries, bakeries, produce wholesalers and food processors.
15. **"Generator"** means an entity which uses the solid waste, recycling and/or compostables collection service and containers arranged for by a customer.
16. **"Incident"**, for purposes of designating an infraction, means a single infraction consists of the failure to comply with the rule on an individual act, occurrence or generator basis.
17. **"Infraction"** means a failure to comply with City Code or rules promulgated thereunder. Infractions may be appealed to the City of Portland Code Hearings Officer pursuant to City Code Section 17.102.100.
18. **"Metro"** means the metropolitan service district responsible for regional solid waste management and planning within Multnomah, Washington and Clackamas counties.
20. **"Multifamily Complex"** or **"Multifamily"** means any multidwelling building or group of buildings that contain(s) five dwelling units or more on a single tax lot, such as apartments, condominiums, mobile home parks, or houseboat moorages. Multifamily also includes certified or licensed residential care housing, such as adult foster care homes or group homes.
21. **"Owner,"** with respect to the obligation to provide recycling for a condominium or cooperatively owned development, means the owners' association or its equivalent.
22. **"Paper and Containers"** includes, but is not limited to, aerosol cans, aluminum, aseptic packaging (drink boxes), corrugated cardboard and kraft paper, glass bottles and jars, magazines, ferrous and nonferrous scrap metals, gable top paper cartons, newspaper, office paper, scrap paper, plastic bottles including milk jugs, steel "tin" cans, and telephone directories and other materials as may be designated by the City. The City of Portland will maintain a materials list that shall be available at the BPS office and on the BPS website.
23. **"Per Day,"** shown as "D" for purposes of designating an infraction, means a single infraction consists of the failure to comply with the rule any number of times during a single day, regardless of the number of customers affected by the infraction (e.g., collection schedule).
24. **"Per Incident,"** shown as "I" for purposes of designating an infraction, means a single infraction consists of the failure to comply with the rule on an individual act, occurrence or customer basis.
25. **"Per Month,"** shown as "M" for purposes of designating an infraction, means a single infraction consists of the failure to comply with the rule at least once and up to any number of times during a single, continuous 30-day period, regardless of the number of customers or, in the case of an infraction by a generator or customer, number of tenants, affected by the infraction (e.g., inadequate vehicle identification markings, or convenience of recycling systems at multifamily).
26. **"Permittee"** means any person granted a commercial collection permit under the provisions of Portland City Code.

27. "**Processing**" means an operation where collected source-separated recyclable or compostable materials are sorted, graded, cleaned, shredded, ground, densified or otherwise prepared, treated or converted for end use markets.
28. "**Recyclable Material**" and "**Recyclable**" includes, but is not limited to, aerosol cans, aluminum, aseptic packaging (drink boxes), corrugated cardboard and kraft paper, glass bottles and jars, magazines, ferrous and nonferrous scrap metals, gable top paper cartons, motor oil, newspaper, office paper, scrap paper, plastic bottles including milk jugs, steel "tin" cans, telephone directories, yard debris, cooking grease, wood, rubble and other materials as may be designated by the City.
29. "**Recycling**" means the series of activities, including collection, separation, and processing, by which products or other materials are recovered from or otherwise diverted from the solid waste stream for use in the following: (1) in the form of raw materials in the manufacture of new products other than fuel; and (2) as fuel in the case of source separated wood waste which has no other material use.
30. "**Self-haul**," when used in reference to solid waste and/or recyclable and/or compostable materials generated by a commercial entity, means the collection and transportation of such material from a commercial entity where an owner or employee of the entity hauls the material rather than hiring a permittee or independent commercial recycler to perform this function.
31. "**Solid Waste**" has the meaning given in Oregon Revised Statutes but does not include the following materials:
 - a. Sewage sludge, septic tank and cesspool pumpings or other sludge;
 - b. Discarded or abandoned vehicles.
32. "**Source Separate**" means that the person who last uses recyclable or compostable material separates the material from solid waste and keeps the recyclable or compostable material separate from solid waste.
33. "**Yard Debris**" means leaves, grass clippings, sod, weeds, vines, vegetative material from the yard, pumpkins, and prunings of no greater than four inches in diameter or 36 inches in length. Large branches (greater than four inches in diameter or more than 36 inches in length), dirt, stumps, metal, rocks, ashes, animal waste, food and household Solid Waste are not considered yard debris.

Part 5.2, Recycling and Solid Waste Requirements for Commercial Customers, Generators and Self-haulers

A. GENERAL REQUIREMENTS

All businesses must separate recyclable materials from mixed waste and set out these materials for recycling collection as described below. BPS monitoring of compliance will be accomplished through reviewing information reported by businesses' and multifamily, as well as through BPS inspections of onsite recycling and waste systems. The following general requirements apply:

1. Businesses must separate all paper and containers from mixed waste and set out for recycling collection. Businesses failing to recycle all paper and containers will be given the opportunity to demonstrate to BPS why they are unable to meet the requirement. BPS shall work with businesses to address their limitations and increase recycling to the maximum extent practicable. **(D/M)***
2. Businesses shall separate paper and containers from mixed waste and set out these materials for recycling collection in such a manner as to prevent contamination of the recyclable and, where applicable, compostable materials. **(D/M)***
3. Businesses tenants in buildings where garbage collection is provided as part of the rental or lease agreement shall use the collection system for recyclables and compostables made available by the property owner or manager. **(D/M)***
4. Businesses that separate glass for recycling collection must keep it separate from all recyclable paper. **(B/M)***

B. BUSINESS RECYCLING REQUIREMENTS

1. Materials to be recycled.
 - a. All businesses shall recycle all paper and containers. **(D/M)***
 - b. Food scrap generating businesses shall separate all food scraps from mixed waste and set out for collection (e.g. compost, animal feed, or where possible, human consumption). BPS shall determine which businesses are subject to this requirement based on estimates of the amount of food scraps generated. **(D/M)***
2. To be in compliance with the recycling requirements, a business shall not have any recycling in their mixed waste and, if applicable, no food scraps.
If these conditions are not met, the Business will be responsible for implementing the following best management practices established by BPS. BPS may also establish supplemental best management practices for businesses to implement as needed to come into compliance or if a business wishes to further improve recycling and waste prevention. **(D/M)***

- a. Correctly label all interior and all exterior recycling and composting containers and provide accurate signs and instructions that identify the materials the business must recycle.
 - b. Make internal and external recycling containers at least as conveniently located as garbage containers.
 - c. Conduct training of new employees/new tenants and educate all employees/tenants.
 - d. Establish waste hauling, property management, and janitorial services that enable businesses to meet waste prevention and recycling goals.
 - e. Management to review and sign off on best management practices committed to at a business, and designate a point of contact for the City of Portland for all recycling and waste prevention activities within the business.
3. All Businesses are required to prevent total waste (including both trash and recycling) generated as measured by reducing weight, container sizes and/or frequency of collection.
4. Responsibilities of property owners and managers.
- a. Where a customer rents, leases or lets space to a business and includes provision of garbage collection service for any tenant as part of the rental or lease agreement, the customer is responsible to provide a collection system for its business tenants for garbage, recyclables and compostables that meets the applicable best management practices listed above. **(A/M)***
 - b. Where the space rented or leased is office space, the system should consist of at least one recycling container at each workstation, obtained by the customer and distributed by the customer to each tenant business. **(B/M)***
 - c. Where the space rented or leased consists of non-office space, the system should consist of at least one recycling container at each waste container, obtained by the customer, and distributed by the customer to each tenant business. **(B/M)***
 - d. Where a customer provides janitorial services to its business tenants, the contract for janitorial services shall include recycling services that meet the best management practices listed above and support the collection system for recyclable and compostables materials. **(B/I)***
 - e. The customer shall maintain and support communication between the providers of waste hauling, property management and janitorial services to identify and resolve problems related to the collection system for recyclable and compostable materials. **(B/M)***
 - f. At least once a year, the customer shall conduct training and distribute to all tenants information about how to use the onsite collection system. Property owners and managers shall provide new tenants with this information within 30 days of tenant move-in. **(C/M)***
5. Reporting requirements. All businesses and customers with business tenants shall report as requested to BPS on the status of implementing required best management practices. BPS

may request additional information or conduct additional site visits to verify the results reported by a business or customer and provide additional assistance if needed. If implementation of the best management practices is insufficient to meet recycling requirements, BPS may require a business to implement and report on additional supplemental best management practices. Failure to accurately report on the status of implementing best management practices is an infraction. **(B/I)***

6. **Mixed Dry Waste:** Except for mixed dry waste at construction/demolition sites, as listed under Part 4.2 C.6. Disposal Prohibition, the customer shall not arrange for any recycling system which involves mixing recyclables with solid waste for post-collection separation. **(A/M)***
7. Where an affected customer, or construction site general contractor or property owner or manager, has an agreement with their waste hauler whereby the hauler may dispose of allegedly contaminated recyclables or compostables whenever such contamination is encountered in the course of collection, that affected customer, contractor or owner does not have a recycling system which complies with City Code and these rules.
8. If compostable materials are improperly prepared or stored in such a manner as to create pest or odor problems that pose a potential public health and safety concern, the City may require the customer or generator to remedy the problem so that collection of the compostable materials may continue. The customer or generator shall work with the City and the permittee or independent commercial recycler to remedy the pest or odor problem caused by the improperly prepared or stored compostable materials. Failure to remedy a pest or odor problem caused by the improper preparation or storage of compostable materials is an infraction. **(B/I)***

C. CONTAINERS USED BY THE GENERAL PUBLIC

1. For those Businesses that have collection areas where the public (non-employees) are throwing regulated materials directly into waste containers on a business's property, the City recognizes the challenge of capturing all recyclables. Those specific containers are exempt from the Business Recycling Requirements, however, all other areas of the Business still must comply.

D. RECYCLING AT MULTIFAMILY COMPLEXES

1. Multifamily complexes must set up recycling systems that are convenient to tenants, for all materials that can be recycled in Portland's residential curbside system, excluding used motor oil and yard debris. The recycling containers at a multifamily complex shall be placed in a location or locations at least as convenient to tenants as the garbage receptacles, including trash chutes, insofar as is practical given space limitations. **(B/M)***
2. Multifamily complexes shall have a two-sort system, where glass is collected in one container and all other recyclables are collected in another container.
3. A Multifamily complex owner shall make all reasonable efforts to ensure the provision of central collection containers for a two-sort system. The central collection containers shall be used for the collection of all of the recyclable materials listed under Part 4.2 C.5.b. Recyclable Materials to be Collected from Businesses and Multifamily Complexes except motor oil and

yard debris. Failure to provide such recycling at a multifamily complex is considered an infraction by the owner of the complex. **(A/M)***

4. If it is not feasible to provide a central collection system for recyclable materials at a multifamily complex, the owner shall provide a two-sort collection system that utilizes individual recycling roll carts for each tenant. City-approved recycling containers of less than 18-gallon capacity shall be provided to each tenant for the collection of glass.
5. If neither option of central collection or recycling roll carts is feasible at a multifamily complex, an owner may choose to provide recycling through a two-sort system that utilizes City-approved recycling containers of less than 18-gallon capacity to residents. In such case, the system shall meet the conditions listed below. Failure to meet these conditions is considered an infraction by the owner of the complex. **(A/M)***
6. The property owner must provide at least two bins to each unit, must label each bin to identify the unit it belongs to, and must ensure the bins are replaced if lost or damaged. At least one bin shall be used for the collection of glass.
 - a. In these bins, residents shall be offered the opportunity to set out all the same clean and separated materials that are offered for collection under the Residential Franchise, excluding motor oil and yard debris.
 - b. Residents must be provided with weekly collection of the materials in the bins, at convenient set-out locations.
7. In evaluating compliance with the preceding paragraphs, BPS will consider how the inherent limitations of a multifamily site (including space and layout) affect the possibility of providing recycling according to BPS specifications.
8. Owners of multifamily complexes shall distribute to all tenants at least once a year information about how to use the onsite recycling system. Owners shall provide new tenants with this information within 30 days of tenant move-in. **(C/M)***

E. RECYCLING AT BUILDING PROJECTS

1. Where a building project is valued at \$50,000 or more, including both construction and demolition phases, the general contractor is required to ensure that at least 75% of the materials produced on the job site are recycled. Where no general contractor is named on an affected building permit, then this requirement is applicable to the property owner.
2. Every general contractor for a building project having a value of \$50,000 or more (including both demolition and construction phases) shall complete a City-provided Recycling Plan Form. On these forms the construction site general contractor shall list or check off the materials to be recycled at a particular address, and shall identify the type of collector for those materials. Where there is an affected building project and no general contractor is named, then this requirement is applicable to the property owner. These forms must be returned to BPS at the address on the form.
3. For building projects having a total value of less than \$50,000, every contractor is asked to commit to recycle the maximum amount possible on the project.

4. Where a building project is valued at \$50,000 or more, including construction and demolition phases, the general contractor is required to recycle all the following materials generated at the site:
 - a. Wood;
 - b. Corrugated cardboard;
 - c. Metal
 - d. Rubble (concrete/asphalt), and
 - e. Land clearing debris.
5. At construction sites, recyclable materials may be mixed with non-putrescible waste only if the materials are taken for post-collection sorting at a facility that reports to Metro. For an affected building project where there is no general contractor named on the building permit, then this requirement applies to the property owner. Failure of the general contractor or affected property owner to recycle these materials listed on the applicable Recycling Plan Form is considered an Infraction subject to an assessment. **(A/M)***
6. The general contractor or property owner shall ensure the provision of clearly marked recycling containers and storage space for the amount of each recyclable material that accumulates between collections.

F. BUSINESS CONTAINER STORAGE SPACE REQUIREMENTS

1. Authority: These rules establish standards for space requirements for storage of containers of solid waste, recycling or compostables in new construction and when major alterations are made to existing buildings.
2. Applicability: During the application of a building or site development permit for the new construction or major alteration of a building(s) on commercial properties, the following prescriptive method shall be used to ensure adequate storage is available on site and out of the public right of way for garbage, recyclables and compostables. The standards do not supersede additional requirements of any local, state or federal authority; including other City of Portland rules and regulations. All building plans submitted for review shall illustrate and note where the containers will be stored on the commercial property. If an existing building undergoing a major alteration cannot meet the prescriptive size requirements because of zoning, property constraints, or other regulations, the applicant may request approval of an alternate minimum size through the Bureau of Environmental Service's technical review process, outlined in the current edition of the Stormwater Management Manual.

3. Prescriptive Method: The following table is a minimum prescriptive standard for new construction or major alteration of a building(s) on a commercial property. For mixed-use buildings, the minimum storage area shall be the sum of the requirements for each occupancy type in the building. The storage area may be combined into one space, or separated into smaller storage areas. Each storage area shall comply with all other City of Portland or other applicable requirements. These are minimum requirements.

Minimum Storage Area Table

Minimum Storage Area for Garbage, Recycling and Food Waste Containers on Commercial Properties (square feet). Storage area based on the Oregon Structural Specialty Code's current occupant load table factors.

Occupant Load	Non-food Occupancies	Food ^b Occupancies	Multifamily (more than 4 units)	Education
1-59	1.3 sq. ft. per occupant	100 sq. ft.	Properties containing more than 4 units that house occupants overnight for sleeping purposes shall use a minimum of 7 sq. ft. per sleeping unit. Recycling containers at a multifamily complex shall be placed in a location or locations at least as convenient to tenants as the garbage receptacles, including trash chutes.	a. Elementary Schools use 150 sq. ft. min. b. Middle Schools use 200 sq. ft. min. c. High Schools use 235 sq. ft. min.
60-124	1.2 sq. ft. per occupant	1.7 sq. ft. per occupant		
125-199	150 sq. ft.	200 sq. ft.		
200-349	150 sq. ft.	250 sq. ft.		
350-500	200 sq. ft.	300 sq. ft.		
501+	All properties that exceed 500 occupants require a letter or plans stamped by a design professional registered in the State of Oregon determining anticipated garbage, recycling and food waste consumption and area needed on property for collection. Plans shall include required area.			

- a. Detached container enclosures/areas shall be sized based on the type of occupancies and occupant loads of the building(s) using the containers.
- b. Grease/oil waste by food occupancies is considered a recyclable and is accounted for in the food occupancy size factors

G. OTHER

1. Customer Responsibility.

- a. Customers are responsible for providing adequate and safe collection space and access for containers.
- b. Generators are responsible for placing infectious wastes in appropriate containers. Generators should not place these items into containers for collection with solid waste, compostables or recyclables.

- c. Generators are responsible for ensuring source-separated recycling is properly prepared and free of contamination. If applicable, generators are responsible for ensuring source-separated yard debris and/or food scraps are properly prepared and free of contamination. (D/M)

2. Misrepresentation

- a. The customer and generator shall not represent to tenants or employees that placing recyclables into any solid waste container is an acceptable method of handling recyclables or provide any information that is contrary to the requirements of Part 4.4 (Customer and Generator Requirements), except for mixed dry waste at construction/demolition sites, as listed above,
- b. The customer and generator shall not represent that materials collected as recyclables are actually being recovered if the customer or generator knows that the material is not actually being recovered. This applies whether or not the material in question is listed in these administrative rules as a recyclable that permittees are required to collect.
- c. Misrepresentation of the proper separation or actual disposition of recyclables is a failure to comply with this rule. **(B/M)***

3. Graffiti. Their owners shall maintain containers and carts so as to be free of graffiti. Within ten days of receipt of notice from BPS or from the City Office of Neighborhood Involvement (ONI) of any container with graffiti, the entity owning the container shall remove the graffiti. Permittees and independent recyclers are allowed to charge the owner of the container or cart for the cost of replacing or cleaning the container or cart. **(D/M, per container)***

4. Recycling containers provided by BPS are to be serviced directly by the permittee, and should not be used by the customer or generator to transport recyclable materials to a container serviced by the permittee. Compostable containers provided by BPS may be used by the customer or generator to transport compostable materials to a container serviced by the permittee. BPS does not provide permittees, customers or generators any containers for collecting or storing yard debris or solid waste. **(D/M, per container)***

H. CITY INSPECTION

1. In evaluating whether a customer or generator is in compliance with the above provisions has occurred, BPS may conduct an inspection of the premises and consider:
- a. The presence, location and capacity of solid waste, recycling and compostables collection containers;
 - b. The presence and quantities of recyclables in recycling containers, compostables in compostables containers or either in solid waste containers;
 - c. The presence of contamination in recycling and composting containers.
 - d. The presence of signs, flyers, container labels and other information which promotes recycling and composting;

- e. Discussion with employees, tenants, managers and owners, janitorial service providers, permittees, and independent commercial recyclers;
 - f. Other evidence as necessary to assess compliance.
2. Such inspections are only for purposes of providing assistance with and enforcement of solid waste, recycling and compostables collection regulations.

**Part 5.3A Business Compliance and Enforcement:
Customers, Generators and Self-haulers**

A. INITIAL INQUIRY

1. To ensure compliance with these rules by businesses and multifamily complexes, BPS may ask a permittee to verify services provided to the customer to determine whether the required recycling and/or compostables systems required by code or these rules are in place and being used on the customer's property.
2. BPS may initiate an inquiry on its own or upon receiving a complaint.
3. Receipt of Complaint. Complaints regarding compliance with these rules may be accepted from any source, in writing, through personal visit or a telephone call. Anonymous complaints alone will not result in an Infraction. BPS may choose not to identify a complainant if its investigation reveals other evidence that is sufficient as a basis for its decision that an Infraction has occurred.
4. Inspection of Premises. BPS may visit a premise in order to verify whether the required recycling and compostables collection system is in place and being used. BPS will not issue a Notice of Potential Noncompliance without contacting the affected business, multifamily complex, or construction site general contractor or property owner. Refusal to allow entry shall serve as the basis for the Director to apply for and obtain an administrative warrant as provided in City Code Chapter 17.102.
5. Assignment of Responsibility. Where BPS finds that a customer has set up a satisfactory recycling and/or compostables collection system but that the system is not being used by generators who use the customer's waste disposal system, BPS will pursue the noncompliance of the generator(s), not the customer. (In this situation, the generator(s) would normally be the tenants in a multi-tenant commercial building, and the customer would be the owner or property manager. See Definitions).
6. Waiver. A one-time, six (6) month waiver of the Business Recycling Requirement is available upon request. Before the extension is granted, the Business shall submit in writing an explanation of:
 - a. why the City's suggested solutions do not work for the Business, and
 - b. a plan on how they will be in compliance at end of extension.

B. DELIVERY OF NOTICES.

Any notice provided for under these rules is considered sufficient if in writing and accomplished by any of the following means: (1) delivered personally to the alleged offender's advertised business location; (2) deposited in the United States Mail, first class, postage prepaid, addressed to the alleged offender's advertised business location, or to its mailing address as found in the County Assessment and Taxation records; (3) sent by commercial courier to the alleged offender's advertised business location; (4) sent by email to the entity's email address if such has been provided by the entity to BPS. Any such notice, communication or delivery is deemed effective and delivered upon the earliest to occur of either: (1) actual personal delivery to the alleged offender's advertised business location during normal business hours; (2) three (3) business days after depositing in the United States Mail as aforesaid; (3) one (1) business day after shipment by commercial courier as aforesaid; or (4) the same day as email transmission (or the first business day thereafter if emailed on a Saturday, Sunday or legal holiday).

C. FOLLOW-UP AFTER INSPECTION OF PREMISES

1. Letter of Potential Noncompliance. If, after its investigation, BPS has reason to believe that there is a condition of noncompliance, BPS will notify the business, multifamily complex or construction site general contractor or property owner of the potential noncompliance.
2. Assistance Period. The letter will give the business, multifamily complex, or construction site general contractor or property owner an assistance period of at least 30 days from the date of the letter to achieve compliance. During this period, BPS staff will offer assistance in setting up a satisfactory recycling and/or food scrap collection system and achieving participation.

D. BPS INVESTIGATION OF ALLEGED INFRACTIONS

BPS shall investigate each potential Infraction and may contact any known complainant, witness and the alleged offender before making its determination.

E. FINDING OF NO INFRACTION

Within 30 calendar days of a BPS determination that compliance has been achieved, BPS shall notify the alleged offender of such determination.

F. NOTICE OF ASSESSMENT

1. Form and Delivery of Notice. If, after the assistance period, it is determined that noncompliance still exists and an Infraction has occurred, the BPS Director shall deliver a written Notice of Assessment to the offender, specifying the Infraction, the findings that support the Infraction and stating the amount of the Infraction assessment and deadline for payment. This notice shall also include information on the procedure for requesting a hearing to appeal the determination. Where BPS can demonstrate an attempt to properly deliver the Notice, a refusal by the offender or offender's representative to accept the Notice in person, or failure of offender to accept certified mail, shall not constitute a failure by BPS to fulfill the requirement for the delivery of notice.

2. Accumulation of Infractions. A Notice of Assessment may be issued for each rule and for each instance when the Infraction occurs. More than one Infraction, involving different rules, may be accrued simultaneously.

Part 5.3B Business Compliance and Enforcement: Containers in the Right of Way

A. PROHIBITION ON STORING CONTAINERS

No customer or generator shall cause any container for garbage, compostable or recyclable materials to be stored in the public right of way in violation of Portland City Code. Examples of cause may include, but are not limited to, an agreement to store a container on the right of way; requesting a container that is larger than any of the entry points to the storage area within the customer's or generator's place of business; or directing employees to store the container in the right of way. For the purposes of these rules, storage means leaving containers in the right of way for more than 2 hours either before or after collection during normal business hours. If collection occurs after normal business hours, containers may be placed in the right of way at the close of business but must be removed from the right of way by the start of the following business day or within 24 hours of set out, whichever occurs first. (D/M, per container) *

B. FOLLOW-UP AFTER INVESTIGATION

1. Determining the Offender(s). In its investigation, BPS shall make a determination regarding responsibility for noncompliance among the business, the property owner, the permittee and/or the independent commercial recycler. Responsibility for noncompliance and resulting assessments shall follow this determination.
2. Letter of Noncompliance. If, after its investigation, BPS determines that there is a condition of noncompliance, BPS shall issue a letter of noncompliance to the responsible party(s). BPS will notify the property owner as identified in the county assessment records as well as any other persons who reasonably appear to have an interest.
3. The letter of noncompliance shall give the responsible party(s) a period of 30 days from the date of the letter to achieve compliance. During this time (compliance period), the offender(s) and other interested parties may request assistance from BPS in identifying solutions that remedy the CROW condition.
4. Extensions of Compliance Period. BPS may grant an extension beyond the initial 30 days to achieve compliance if the offender(s) has undertaken a good faith effort to come into compliance. The extension period cannot extend beyond 90 days after BPS issues the initial letter of noncompliance.
5. New service. For purposes of CROW rules, a service is considered to be a new service if after May 1, 2008, a service is started by a permittee or independent recycler or if any of the garbage, recycling or compostable containers are replaced. If, in its investigation, BPS determines that a permittee or independent recycler has established a new service with a customer and is responsible for placing containers in the right of way, BPS may take immediate enforcement action against the responsible permittee or independent recycler, including the issuance of an order to remove the non-compliant container(s).

C. LIMITED TERM EXTREME ECONOMIC HARDSHIP EXEMPTION

1. If BPS determines that the business or property owner is a responsible party for the violation, they are entitled to apply for a limited term extreme economic hardship exemption (exemption).
2. Exemptions, either initial or renewal, will be for a period of one year. Property or business owners may re-apply for one additional exemption at the expiration of the initial granted exemption.
3. Eligibility for Exemption
 - a. The applicant (Applicant) must be an owner of the business or property that is in violation of CROW requirements and identified as a responsible party for the violation.
 - b. To apply for an extreme economic hardship, the applicant must demonstrate that they have considered all reasonable options for correcting the violation and explain why none is viable. It is at BPS' discretion whether this requirement has been met.
 - c. A business / property owner who does not meet both of these requirements is not eligible to apply for an exemption. BPS shall take enforcement action at the end of the compliance period.
4. A property that has had an open CROW case after April 1, 2008 is not eligible for an initial exemption but may apply for a one-time renewal exemption.
5. The merits of each application for a hardship exemption will be considered individually.
6. Initial Application
 - a. An application for hardship will be considered when complete. All materials must be received by BPS by the end of the initial 30 day compliance period or, if applicable, by the end of the extended compliance period granted by BPS. Incomplete applications or applications received after the end of the compliance period will not be considered and the business or property will immediately be considered to be in a state of non-compliance at the end of the compliance period.
 - b. Initial Exemption Application Requirements. Applications for an initial exemption must include all of the following:
 - 1) Application Fee. BPS shall charge a processing fee to all applicants. The fee amount is listed in the fee schedule included in these administrative rules. All application fee payments shall be final. No payments will be returned, regardless of whether the exemption is approved or disapproved.
 - 2) Consideration of all Reasonable Alternatives. The applicant must submit a list of all actions considered in attempting to comply with the CROW requirement and the specific reason why each is not capable of achieving compliance within the compliance period. Applicant shall provide documentation of each alternative sufficient for BPS to evaluate its merits. Such documentation may consist of items such as names, dates and contact information for people consulted in an attempt to

achieve compliance, for example, the owner of a neighboring business who was asked if they would share collection service with the applicant and the reason given for refusal.

- 3) Applicant must submit three bids from licensed contractors for construction work that would meet the minimum storage space requirements as shown in Subsection 5.2 F of BPS' Business Solid Waste, Recycling and Compostables Administrative Rules. Bids must be dated no more than 60 days prior to the submission of the application
- 4) Applicant must submit copies of the previous three years federal tax returns filed by the business or property owner identified by BPS as a responsible party for the violation to document financial hardship.

c. Ruling on Application.

- 1) Applicant's gross income average (GIA) will be determined by averaging the gross income from the previous 3 years as stated in their federal tax returns submitted to BPS as part of their application materials.
- 2) Applicant will be categorized as a "small business" if the business, or the applicant? GIA is less than \$680,000.
- 3) Applicant qualifies for an exemption if the lowest bid submitted for meeting the space requirements is:
 - a) More than 4% of their GIA if they are a "small business" as defined in this section of the rules
 - b) More than 5% of their GIA if they are not a "small business" as defined in this section of the rules
- 4) BPS will issue its determination on the application within 30 calendar days of receipt of completed application.
- 5) The hardship exemption shall be for a period of 12 months, effective on the day that the decision is issued by BPS.
- 6) If the application is denied, the applicant is considered to be in a state of non-compliance and subject to enforcement actions immediately upon the mailing of BPS' rejection of the application unless the applicant submits a request for an appeal as described in Subsection 5.3B D.11 of these administrative rules.

7. Renewal Application

- a. A business or property owner who has a current exemption may apply for one additional exemption that would take effect upon the expiration of the initial one.
- b. The application for renewal will be considered when complete. All materials must be received by BPS at least 60 days prior to the expiration of the initial exemption. Incomplete applications or applications received less than 60 days prior to the expiration of the initial exemption will not be considered and the business or property will immediately be considered to be in a state of non-compliance at the end of the initial exemption.

- c. Renewal Exemption Application Requirements. Applications for a renewal exemption must include all of the following:
- 1) Application Fee. BPS shall charge a processing fee to all applicants. The fee amount is listed in the fee schedule included in these administrative rules. Payment of the application fee is final, regardless of the final determination upon the application.
 - 2) Progress Summary. The applicant must submit a list of all actions taken in an attempt to comply with the CROW rules since the time their initial exemption was granted, including the specific reason why applicant was unable to achieve compliance within the initial exemption period.
 - 3) Applicant must submit three bids from licensed contractors for construction work that would meet the minimum storage area for garbage, recycling and food waste containers as determined in Subsection 5.2 F of BPS' Business Solid Waste, Recycling and Compostables Administrative Rules. Bids must be dated no more than 60 days prior to the submission of the application.
 - 4) Applicant must submit copies of the previous three years federal tax returns filed by the business or property owner identified by BPS as a responsible party for the violation to document financial hardship.
- d. Upon receipt of a complete application package, BPS shall schedule a public hearing and will mail a notice of the applicant's request, including the time, date and location of the hearing, to the recognized organization(s) in which the property is located, to self-identified interested parties and to all organizations recognized by the City's Office of Neighborhood Involvement that are within 400 feet of the property.
- e. Ruling on Application.
- 1) Applicant's gross income average (GIA) will be determined by averaging the gross income from the previous 3 years as stated in the federal tax returns submitted to BPS as part of the application materials.
 - 2) Applicant will be categorized as a "small business" if their GIA is less than \$680,000.
 - 3) Applicant qualifies for an exemption if the lowest qualified bid submitted for meeting the space requirements is:
 - a) More than 6% of their GIA if they are a "small business" as defined in this section of the rules
 - b) More than 7% of their GIA if they are not a "small business" as defined in this section of the rules
 - 4) BPS will issue a written determination within 30 calendar days of the public hearing. BPS will mail notice of the decision to the recognized organization(s) in which the property is located, to all recognized organizations within 400 feet of the property and to any person who submitted comments at the public hearing or in writing prior to the hearing.

- 5) Exemptions will be limited to 12 months, starting on the day that the initial exemption is granted, and expiring one year later.
 - 6) If the application is denied, the property is considered to be in a state of non-compliance and subject to enforcement actions immediately upon the expiration of the initial exemption unless the applicant submits a request for an appeal as described in Subsection 5.3.B.C.11 of these administrative rules.
- f. A business or property owner is eligible for no more than one renewal exemption. At the expiration of a renewal exemption, the property will be in a state of non-compliance and subject to immediate enforcement action.
8. BPS may confirm the authenticity and/or accuracy of any of the claims or documents in the application process. BPS may request that the applicant provide additional information or documentation to support the application. BPS will either approve or deny an exemption based on the materials submitted in the application. BPS may also refer to other City records, such as any City maintained case history.
9. Exemptions are neither transferable nor assignable. The exemption will terminate immediately, without any action by the City, if there is any transfer of ownership of the business or change in location.
10. Revocation of Exemption. BPS may conduct a review at any point during the exemption, and may request updated information from the applicant. BPS may revoke any exemption if BPS subsequently determines that the applicant provided inaccurate information in support of the application.
- a. It is the responsibility of the applicant to inform BPS if the tax returns submitted in their application to document hardship are amended in a way that changes the gross income such that the GIA exceeds the threshold.
 - b. Changes to construction bids or new construction bids will not be considered after submission of completed application package.
 - c. If BPS revokes an exemption for just cause, the property will be considered to be in a state of non-compliance and subject to immediate enforcement actions.
11. Appeal Process
- a. Any person filing an appeal, whether for decision on an initial exemption or a renewal, must do so in accordance with procedures set forth in Title 22 of the City Code except for variances as described in these administrative rules.
 - b. Initial Exemption. An applicant for an initial exemption may appeal the denial of an exemption to the Code Hearings Office in accordance with the procedures set out in Chapter 22 of the Portland City Code. The appeal must be submitted to BPS within ten (10) business days of the day the notice of decision is mailed.
 - c. Renewal Exemption. An applicant for an exemption renewal, or the neighborhood association where the business / property is located, may appeal BPS' decision to the

Code Hearings Office. The appeal must be submitted to BPS within ten (10) business days of the day the notice of decision is mailed.

- d. Appeal Fee. If the applicant requests an appeal to the Code Hearings Office, they must include payment of the appeal fee, as stated in Subsection 5.3.B.C.11.j of these administrative rules, along with their written request for a hearing to BPS. Failure to submit a written request or the appeal fee within ten (10) business days of the day the notice of decision is mailed is jurisdictional and the appeal shall be dismissed.
- e. Refund of Appeal Fee. If the Code Hearings Officer rules in favor of the applicant, BPS will refund the appeal fee within 45 days of the issuance of the Hearings Officer's Order.
- f. The filing of an appeal will stay any enforcement action of the CROW requirements against the property until the appeal is determined by the Code Hearings Officer. The Code Hearings Officer will consider only the issues raised by the appellant in their written appeal.
- g. If, pursuant to said appeal hearing, the denial, suspension or revocation is sustained by the Code Hearings Officer, the permittee servicing the property shall cease all collection of solid waste and/or recyclables and/or compostables in Portland no later than 15 calendar days after the order becomes final unless the Code Hearings Officer decision is appealed to circuit court by writ of review. If a denial, suspension or revocation decision is appealed to the state courts and is upheld, permittee shall cease all collection of solid waste and/or recyclables and/or compostables in Portland no later than 15 calendar days after final resolution of the judicial proceedings.
- h. If the Code Hearings Officer overturns BPS' denial of an exemption, the business or property owner will be granted a one year exemption. The exemption begins on the effective date of the Hearings Officer's decision if the application is for an initial exemption, or on the day following the expiration of the current exemption if the application is for a renewal.
- i. If the Code Hearings Officer overturns BPS' granting of a renewal exemption, the applicant is considered to be in a state of non-compliance and subject to enforcement actions immediately upon the expiration of the initial exemption.
- j. Economic Hardship Fee Schedule. BPS may assess the following fees for the administration of the CROW Limited Term Extreme Economic Hardship Exemption program:

Description	Fee Amount
Application for Exemption (initial or renewal) – non-refundable	\$250
Appeal of Denial for Exemption to Code Hearings Officer – refundable if Code Hearings Officer decides in favor of appellant	\$500

D. NOTICE OF ASSESSMENT

1. Form and Delivery of Notice. If, after the compliance period, it is determined that noncompliance still exists and an infraction has occurred, the Director may deliver a written notice of assessment to the offender, specifying the infraction, the findings that support the infraction and stating the amount of the infraction assessment and deadline for payment. This notice shall also include information on the procedure for requesting a hearing to appeal the determination. Notice of infraction is considered effective as of the mailing date by certified mail.

E. ORDER TO REMOVE CONTAINERS

If, after the compliance period or any other stays of enforcement, such as pending a decision after appealing to the Code Hearings Officer, it is determined that noncompliance still exists and an infraction has occurred, the Director may deliver a written notice to the business / property owner and any and all contracted permitted haulers, independent commercial recyclers or other owners or service providers of containers violating CROW rules ordering the removal of the non-compliant container(s) within ten (10) business days. Failure to comply is a violation of the City's Commercial Solid Waste, Recycling and Compostables Administrative Rules.

**Part 5.3C Business Compliance and Enforcement:
Common Aspects**

A. STANDARD FOR MAKING DETERMINATION OF INFRACTION

In determining whether an infraction has occurred, the Director shall evaluate the totality of the circumstances related to the infraction.

B. PAYMENT OF INFRACTION ASSESSMENTS

1. Payment of Assessments Required or Appeal. The alleged offender shall, within ten (10) business days of BPS issuance of the written notice of Assessment, pay to BPS the stated civil penalty or request an appeal hearing by a Code Hearings Officer as set forth in Portland City Code Title 22.
2. Appeal Fee. The appellant may be assessed a fee of up to \$500 at the time of their application. Failure to submit full payment of appeal fee within the time allowed to request an appeal hearing shall result in the denial of the request for an appeal hearing.
 - a. Refund of Appeal Fee. If the Code Hearings Officer decides in favor of the appellant at the Code Hearing, the submitted appeal fee shall be refunded in full to the appellant.
3. 15-Day Payment Required Upon Failed Appeal. If, pursuant to said appeal hearing, an Infraction assessment is ordered, payment of said Assessment must be received by BPS or postmarked within 15 calendar days after the order becomes final. **(D/I)**
4. Interest on Assessment. An Assessment which is not paid within the time provided shall accrue interest at the rate set by the Council until paid. BPS may take legal action to collect assessments which are not paid when due.
5. City May Take Legal Action to Collect Assessments. The City may take legal action to collect Assessments, which are not paid when due.

C. INFRACTION CATEGORIES AND ASSESSMENTS

1. Infraction Classifications. Each violation of a rule for which an infraction is assigned is given a dollar amount which reflects BPS's evaluation of both the seriousness of the matter and the frequency with which the violation is committed. The lowest amount, \$200, is assigned to the first occurrence of the least serious infraction while the highest amount, \$1500, is assigned to the most serious infraction on the third or subsequent occurrence. Each infraction notation consists of two letters, such as (A/I) which reflect the seriousness of the infraction.
 - a. First Letter. The first letter represents the level of assessment as show on the chart below. These range from category A-D, with category A representing the most serious and category D representing the least serious infractions.

b. Second Letter. The second letter reflects the classification of the standard, which is whether an infraction will be on a “Per Incident,” “Per Day” or “Per Month” basis (see Definitions). The following abbreviations apply:

- “I” means on a per incident basis;
- “D” means on a per day basis;
- “M” means on a per month basis, and

For example, an (A/I) designation means that a \$500 assessment (as shown under category A on the chart below) would be applied for the first single “incident” within a 365-day period but would increase to \$1500 for the third or subsequent incident within that same period.

2. **Infraction Assessment Schedule.** An infraction according to these rules shall result in an Infraction Assessment in accordance with the following schedule:

Category	First Infraction	Second Infraction	Third and Subsequent Infractions
A	\$500	\$1000	\$1500
B	\$400	\$800	\$1200
C	\$300	\$600	\$900
D	\$200	\$400	\$600

The assessment amounts shown throughout these rules are for the first infraction of a given rule within a 365-day period. If more than one infraction of the same rule occurs within a 365-day period, the corresponding infraction amount will increase for the second, third or subsequent infractions, as shown above. The total assessment will be the sum of infraction amounts. For example, three separate infractions of the same rule with an assessment category of “B” above will result in a total assessment of \$400 + \$800 + \$1200 = \$2400.

The Director has the discretion to adjust the assessment amount when considering the following criteria:

- a. The nature and extent of the person’s involvement in the violation;
- b. Whether the person was seeking any benefits, economic or otherwise, through the violation;
- c. Whether the violation was isolated and temporary, or repeated and continuous;
- d. The length of time from any prior violations;
- e. The magnitude and seriousness of the violation;
- f. The costs of investigation and remedying the violation;
- g. Whether any criminal prosecutions have occurred in regard to the violations; and
- h. Other relevant, applicable evidence bearing on the nature and seriousness of the violation.

SAN JOSE, CALIFORNIA CASE STUDY ATTACHMENTS

Strategies for Achieving Zero Waste in San José

Waste Not:
The Future of Organics in Minnesota
June 2, 2015
Minneapolis, MN



*Delivering world class utility services and programs
to improve our health, environment and economy*

San José Green Vision

- 25,000 Clean tech jobs
- 50% Reduction energy use per capita
- 100% Renewable electrical power
- 50 million ft² retrofitted green buildings
- **Zero Waste and Waste to Energy**
 - 100% wastewater beneficially re-used
 - Sustainability in General Plan
 - 100% alternative fuel City vehicles
 - 100,000 new trees planted
 - 100 miles of interconnected trails



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to improve our health, environment and economy*

do you know the way to... San José, CA

- Silicon Valley
 - south SF Bay
- 10th largest US City
- ~1m diverse residents



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San José Solid “Waste” (Resource!) Stream

- 1.8M tons of waste generated per year
- 300k tons waste/yr commercial
- 475k tons waste/yr residential
- 70k tons waste/yr C&D
- 65k tons/yr biosolids

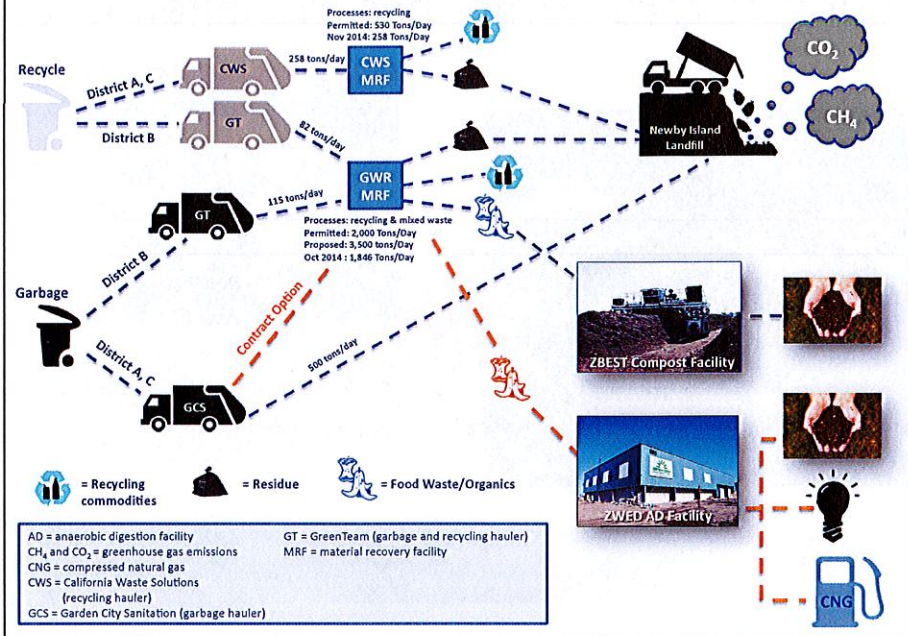
Commercial
79% of tons are recoverable
35% Recyclable
33% Compostable
11% Technically Feasible

Residential
~58% of tons recovered
97% Yard Trimmings
78% MFD material
30% SFD material



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Recycle Plus Single-Family Material Flow



Yard Trimmings ~120,000 tons/year



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Current Yard Trimmings Management



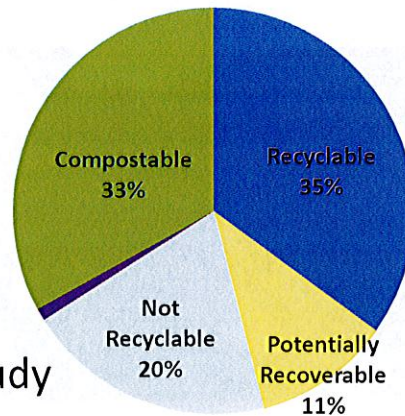
~20,500 tons "hog fuel" to co-gen



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New directions for the commercial sector

- 2007 Green Vision
 - Zero Waste Goal
 - Renewable Energy
 - Waste to Energy
- 2008 Waste Characterization Study
- Systems Performance Issues



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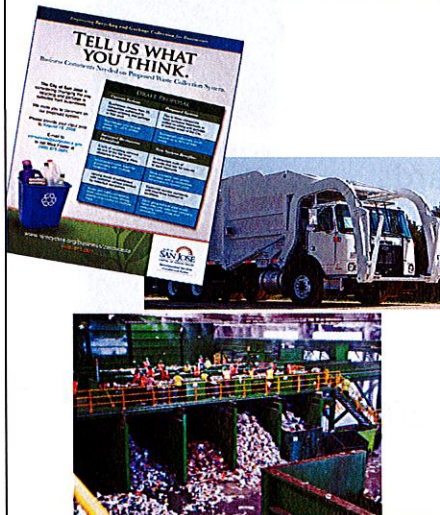
Prior Commercial System (1995-2012)

- Non-Exclusive Competitive Marketplace with 20-25 Haulers
- Volume-Based Fees
- 22% Diversion Rate
- Inconsistent Customer Rates and Services
- Negative Environmental Impacts



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Procurement Process

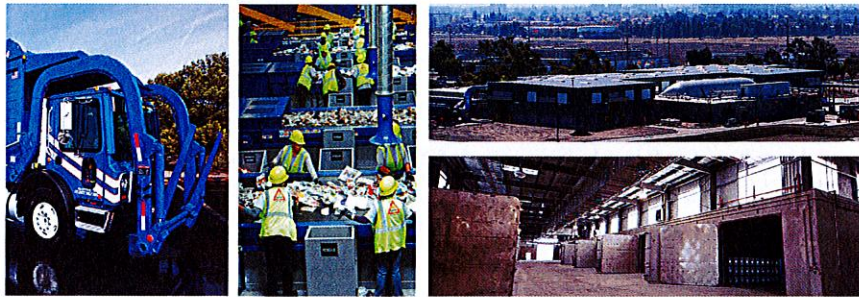


- 7 Years of Planning
 - RFPs released April 2010
 - Awarded in June 2011
 - Program started in July 2012
- Focus: Infrastructure Development
 - Create exclusive system to guarantee tons
 - Long-term contracts
- 2 Requests For Proposals
 - Collection & Recyclables Processing
 - Organics Processing



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New Commercial System (2012-2027)

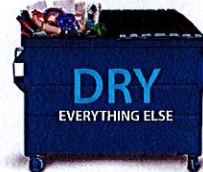


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New Agreements

Terms

- High Diversion Targets
- Customer Service Standards
- City Sets Rates
- Non-Delivery Penalties
- Exclusive Rights
- Specs for Organics to ZWED
- Processing Audits



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- Fruits & Vegetables
- Bread & Pastas
- Dairy Products
- Meat & Seafood
- Coffee Grounds & Filters
- Food Soiled Paper & Cardboard
- Napkins & Paper Towels
- Paper Cups & Plates
- Paper Take-Out Food Containers
- Yard Trimmings


- Clean Cardboard & Paper
- Glass Bottles & Jars
- Packing Materials
- Carpet & Padding
- Reusable Items
- Plastics
- Clean Wood
- Scrap Metal
- Metal Cans
- Foam Cups & Containers


•For those businesses with an abundance of clean commodity e.g.; clean cardboard, paper, glass or wood

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Implementation Process

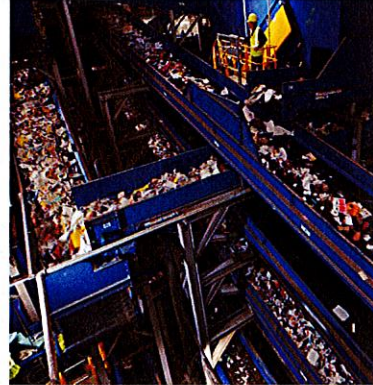
- Installation of CNG Fueling Station
- 50 CNG Trucks
- Acquisition of Accounts
- Audit of entire customer base
- Outreach started 6 Months in Advance
- Business Association Meetings
- Routes Based on Audit Findings



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Transition Challenges

- MRF Readiness
 - 3 Week Utility Delay
 - Organic Line Modifications
- AD Facility Readiness
 - Late 2013 Opening
- Customer Communications
- Container Changes
- Relationship Management



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Newby Island Resource Recovery Park (NIRRP)

- MRF, Composting,
Gas-to-Energy, C&D,
CNG Fueling Station
and Landfill
- Most Advanced
Materials Recovery
Facility in the World



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to improve our health, environment and economy*

Newby Island Resource Recovery Park (NIRRP) – CNG Fuelling Station

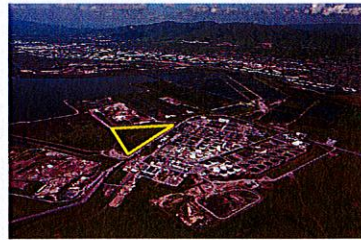
- use of renewable energy
- reduced GHG emissions
- reduced noise pollution



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AD Project Site - City/ZWED Collaboration

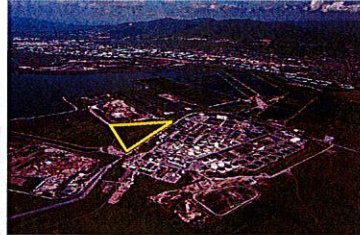
- Closed landfill
- 30-year ground lease
- Rent deferred for site development costs
- Close to NIRRP



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AD Project Site - City/ZWED Collaboration

- Closed landfill
- 30-year ground lease
- Rent deferred for site development costs
- Close to NIRRP



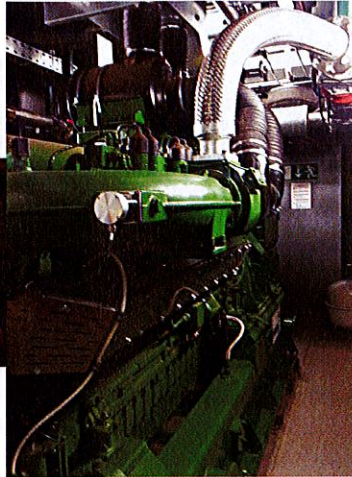
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Zero Waste Energy Development



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Zero Waste Energy Development



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2014 Commercial Program Results

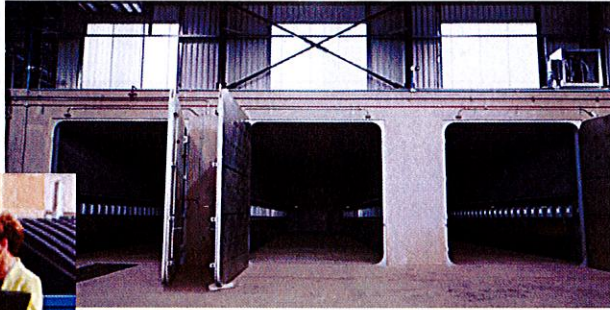


Total Program Tonnage Collected	222,197
Total Tonnage Delivered to ZWED	73,874 (33%)
Newby Island MRF Commercial Recovery	78.8%
Total Program Recovery	77.8%



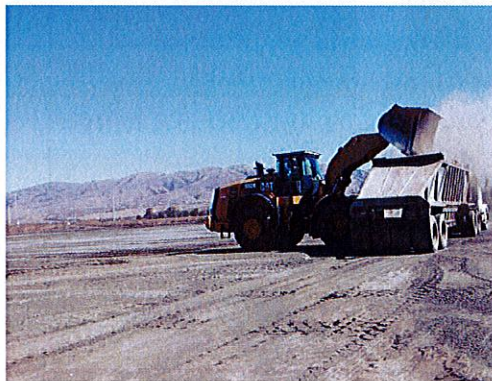
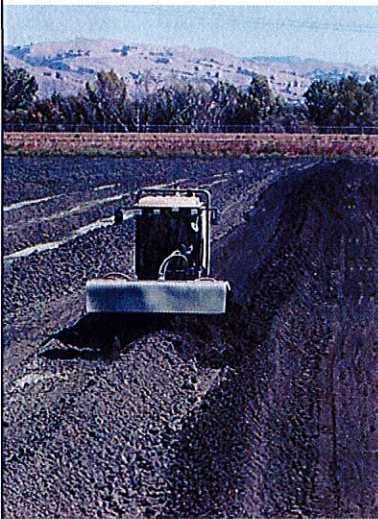
Tripled the Pre-Program Recovery Rate!

What's Next for San José?



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What's Next for San José?



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Stephanie Molloy

Email: stephanie.molloy@sanjoseca.gov

Telephone: 408.975.2591

Our passion. Our city.

-  [twitter@KerrieRomanow](https://twitter.com/KerrieRomanow)
 -  facebook.com/brightgreensanjose
 -  instagram.com/sjenvironment
- www.sjenvironment.org
#keepSJclean



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MIAMI, FLORIDA CASE STUDY ATTACHMENTS



CITY OF MIAMI

Solid Waste Department

[Text - Only](#) | [home](#) | [city directory](#) | [city officials](#) | [city organizations](#) | [commission agendas](#) | [employment](#) | [events](#) | [search](#)

SOLID WASTE: [Home](#) | [Solid Waste Services](#) | [Contact Us](#) | [Special Assistance](#) | [Cleanup](#)

NEW! KEEP MIAMI BEAUTIFUL

GARBAGE COLLECTION

BULKY TRASH COLLECTION

RECYCLE COLLECTION

SOLID WASTE MONTHLY REPORT

STREET SWEEPING

MINI DUMP FACILITY

SANITATION CODE ENFORCEMENT

FRANCHISE AGREEMENT

THINGS TO KNOW

FAQS

CONTACT US

SEARCH CITY OF MIAMI:

Welcome to the Solid Waste Department

Franchise Agreement

SOLID WASTE FRANCHISEE HAULING SYSTEM

Commercial/Industrial: All commercial or industrial haulers or entities engaged in collecting, transporting, or disposing of solid waste within the corporate limits of the City of Miami are required to be licensed by the City of Miami under a Non-Exclusive Commercial Solid Waste Franchise Agreement. The agreement allows the “Franchisee” to provide the aforementioned services to commercial properties and apartment buildings of four (4) or more units within the City of Miami.

The Franchise Agreement provides information regarding the following:

1. The rules of conduct and requirements governing the operation of the Franchisees’ within the City of Miami.
2. The fees associated with being a licensed Franchisee include; the annual franchise fee to pick up both garbage and trash.
3. There is a monthly franchise fee of 24% of gross receipts that is due to the City of Miami each month.
4. There is also a \$75.00 permit per account fee due to the City of Miami annually by Oct. 1st, for all active commercial accounts including roll-off accounts.
5. The term of the Franchise Agreement is for a period of five years (1/01/2016-1/01/2021) with three (3) one (1) year option periods to renew through 1/01/2024 at the discretion of the City of Miami.

For general questions, please contact the Solid Waste Department at 305-960-2863.

Non-Exclusive Commercial Solid Waste Franchisee Haulers List:

Non-Exclusive Franchise Commercial Haulers List

Please refer to our printable list of Commercial Haulers:

[Commercial Haulers List \(PDF\)](#)

[Daily Inspection Route](#)

ARTICLE II. - REGULATION OF PERSONS ENGAGED IN COMMERCIAL WASTE COLLECTION

Sec. 22-46. - Engaging in business of solid waste collection and disposal; issuance of franchise agreement to private solid waste collectors.

- (a) No person, firm or corporation shall remove or transport any solid waste material over the streets or public rights-of-way of the city or its real property for hire or salvage without first applying for and receiving a franchise from the department to carry on such a business. The franchise required by this section shall be in addition to any local business tax receipt and other license(s) which otherwise may be required by law, including F.S. § 403.4046. A franchise will not be granted to a commercial property for the sole purpose of hauling the solid waste material of its own tenants or occupants.
- (b) It shall be unlawful for any commercial solid waste collector/franchisee to provide service to any property within 100 feet of a residential district between the hours of 11:00 p.m. and 7:00 a.m.
- (c) No franchise granted pursuant to this chapter shall be deemed the property of the holder thereof.
- (d) The city reserves unto itself the power to revoke all franchises granted pursuant to this chapter, to change or limit the rights granted, or to otherwise modify the franchises, in its sole discretion, by ordinance duly enacted by it. Such action shall not be deemed a taking of a property, contract, or other right of any franchisee, it being the express intention of this chapter to reserve unto the city, the power, in its sole discretion, to alter the methods of solid waste collection employed in the city, and the manner in which to provide for solid waste services delivered within the city.
- (e) The city commission is authorized, from time to time, to grant one or more franchise(s) granting the right and privilege to operate a commercial garbage and trash collection and disposal system in, upon, over and across the present and future streets, alleys, easements and other public places of the city for the purpose of collecting all solid waste from commercial and multifamily establishments as defined in this chapter.
- (f) The franchise(s) shall be granted only after the applicant for the franchise has responded successfully to the request for qualifications and filed with the purchasing department, an application, and such other documentation as may reasonably be required to establish that the applicant meets all of the requirements delineated in this chapter.
- (g) The franchise(s) shall initially be granted for a period of five years, with three one-year options to renew, upon approval of the application by the city commission. The option to renew any franchise(s) for the additional three one-year periods shall be at the sole discretion of the city.

(Ord. No. 10128, § 1, 7-10-86; Code 1980, § 22-18; Ord. No. 11703, § 13, 9-28-98; Ord. No. 11837, § 2, 9-28-99; Ord. No. 12258, § 2, 7-25-02; Ord. No. 12599, § 2, 10-14-04; Ord. No. 12885, § 1, 2-8-07; Ord. No. 13194, § 2, 9-27-10; Ord. No. 13531, § 2, 7-9-15)

Editor's note— Ord. No. 12599, § 2, adopted October 14, 2004, changed the title of § 22-46 from "Engaging in business of solid waste collection and disposal; issuance of nonexclusive franchise agreement to private solid waste collectors" to "Engaging in business of solid waste collection and disposal; issuance of franchise agreement to private solid waste collectors."

Sec. 22-47. - Application for franchise.

Applications for a franchise shall be made to the purchasing department upon such form and in such manner as shall be prescribed by the director of purchasing to elicit the following information and to be

accompanied by supporting documents and such other information as may be required by the purchasing department:

- (1) *Name of applicant.* If the applicant is a partnership or corporation, the names and business addresses of the principal officers and stockholders and other persons having any financial or controlling interest in the partnership or corporation. Provided, however, that if the corporation is a publicly owned corporation having more than 25 shareholders, then only the names and business addresses of the local managing officers shall be required.
- (2) *Character of applicant.* The applicant for a franchise under this section, if an individual, or in the case of a firm, corporation, partnership, association or organization, any person having any financial, controlling or managerial interest therein, shall be of good moral character. In making such determination the following information, which shall be submitted by applicant, shall be considered:
 - a. *Penalty history.* If the applicant is an individual, a record of all convictions and the reasons therefore shall be provided by the applicant. If the applicant is other than an individual, then the record of all convictions and the reasons therefore of the principal controlling officers of applicant shall be provided. Provided, however, that in the case of a publicly held corporation having 25 or more shareholders, then only the aforementioned information applicable to its local managing officers shall be required.
 - b. *Fingerprints.* The fingerprints of the persons mentioned in this subsection, a full set of which, for each of such persons shall accompany the application. Such service shall be obtained from a public agency.
 - c. *Business history.* Whether such applicant has operated a solid waste collection removal business in this or another state under a franchise, permit or license and if so, where and whether such franchise, permit or license has ever been revoked or suspended and the reasons therefore.
 - d. *Existence of business entity.* If the applicant is a corporation, applicant shall submit proof of incorporation in good standing in the state of incorporation and, if a foreign corporation, applicant shall provide information certifying that applicant is qualified to do business in the state. If applicant is operating under a fictitious name, applicant shall be required to submit information that such fictitious name is registered and held by applicant.
- (3) *Equipment and method of operation.* The applicant for a franchise shall possess equipment capable of providing safe and efficient service. In making such a determination and approving the method of operation for each applicant, the department shall require the following information:
 - a. The type, number and complete description of all equipment to be used by the applicant for providing service pursuant to this chapter.
 - b. A statement that applicant will use only city- and/or county-approved disposal sites for disposing of all garbage, garden trash, industrial waste, and solid waste material which applicant collects and removes, except those sites which heretofore have been approved by the State of Florida department of environmental protection.
 - c. The names of customers and the addresses of each location served by the company.
- (4) *Insurance requirements.*
 - a. The applicant for a franchise shall maintain insurance as specified herein and shall furnish a public liability policy to the department and also file with the department a certificate of insurance for the policy written in the applicant's name. The certificate shall provide that the policy contain an endorsement requiring that the department shall be furnished with ten days' notice by registered mail prior to cancellation or material changes in the policies. The applicant shall carry in the applicant's own name an automobile liability insurance policy covering the applicant's operations with a combined single limit of \$1,000,000.00 per occurrence for bodily injury and property damage liability. The city shall be listed as an additional insured for liability.

- b. A performance bond or an acceptable alternative in an amount equal to the contractor's previous 12-month franchise fee(s) paid to the city or a minimum of \$25,000.00, whichever is greater, as security for any fee(s) due to the city under the franchise agreement(s) with good and sufficient sureties conditioned upon the compliance of the terms of this chapter in such form as required by the city attorney. Said performance bond, or alternative acceptable by the department, shall not expire prior to six months from the commencement of the term of the franchise agreement and any extensions thereof.
- (5) *Liability of the city and the department.* The above insurance requirements shall not be construed as imposing upon the city or the department or any official or employee thereof any liability or responsibility for injury to any person or damage to any property by the insured, the insured's agents or employees.
- (6) *Limitation on hours of operation.* Private waste collection operators franchised by the city shall service their accounts, located within 100 feet of residential districts only between the hours of 7:00 a.m. and 11:00 p.m., except as determined and defined by the director. Commercial corridors as determined by the director.
- (7) *Application form.* Each application for a franchise shall be made on a standard form promulgated by the director of purchasing and shall include an affirmation that the applicant will comply with this chapter in all respects.
- (8) *Review and issuance.* The completed application shall be submitted to the purchasing department. Upon receipt of a completed application, the director of purchasing shall review said application and, if satisfactory in all respects, shall make recommendations to the city commission.

(Ord. No. 10128, § 1, 7-10-86; Ord. No. 10440, § 2, 5-19-88; Ord. No. 11184, § 5, 10-27-94; Code 1980, § 22-18.1; Ord. No. 11837, § 2, 9-28-99; Ord. No. 12258, § 2, 7-25-02; Ord. No. 12599, § 2, 10-14-04; Ord. No. 13194, § 2, 9-27-10; Ord. No. 13316, § 2, 3-8-12)

Editor's note— Ord. No. 12599, § 2, adopted October 14, 2004, changed the title of § 22-46 from "Application for nonexclusive franchise" to "Application for franchise."

Sec. 22-48. - Denial of application.

Should the director of purchasing propose denying an application for a franchise, the applicant shall be notified of such denial by certified mail not later than 14 days prior to the director of purchasing making such recommendation to the city commission. The notice of denial shall contain a statement of the reasons why the application is being recommended for denial.

(Ord. No. 10128, § 1, 7-10-86; Code 1980, § 22-18.2; Ord. No. 11837, § 2, 9-28-99; Ord. No. 13194, § 2, 9-27-10)

Sec. 22-49. - Appeal from the recommended denial of franchise; appeal from revocation of franchise.

- (a) The recommended denial of a franchise by the director of purchasing may be appealed to the city commission. The notice of appeal shall be filed in writing with the purchasing department no later than 14 days after the receipt of the certified letter advising applicant of the proposed denial.
- (b) The director of purchasing shall schedule a public hearing for the appeal. Said hearing shall be held not less than 14 nor more than 60 days after receipt of the notice of appeal. The city commission shall either affirm the decision of the purchasing director or direct the purchasing director to issue the franchise.

- (c) The revocation of a franchise by the director of solid waste may be appealed to the city manager or the city manager's designee. The notice of appeal shall be filed in writing with the city manager with a copy addressed to the director of solid waste no later than 14 days after the receipt of the certified letter advising franchisee of the revocation.
- (d) The city manager or the city manager's designee shall fix the date and time for hearing the appeal. Said hearing shall be held not less than 14 nor more than 60 days after receipt of the notice of appeal. The city manager or the city manager's designee shall either affirm the decision of the director of solid waste or direct the director of solid waste to reinstate the franchise. Should a revocation and/or reduction in the number of franchisees occur, the city commission may add additional qualified applicants to the approved franchisee list provided that said list does not exceed the number of previously approved franchisees.

(Ord. No. 13194, § 2, 9-27-10)

Editor's note— Ord. No. 13194, § 2, adopted September 27, 2010, amended section 22-49 in its entirety to read as herein set out. Formerly, section 22-49 pertained to appeal from the departmental denial of franchise; appeal from revocation of franchise, and derived from Ord. No. 10128, § 1, adopted July 10, 1986; the Code of 1980, § 22-18.3, and Ord. No. 11837, § 2, adopted September 28, 1999.

Sec. 22-50. - Franchise fees.

- (a) Commencing October 1 of every new fiscal year, each and every franchisee shall pay an annual permit per account fee of \$75.00, for each active account that was acquired or maintained in the previous fiscal year for purposes of providing commercial solid waste services or specialized waste handling services. For each account acquired or maintained after October 1 of the current fiscal year, a one-time fee of \$75.00 shall be due and payable upon acquisition of the account.
Said permit per account fee shall not be transferable.
- (b) Beginning October 8, 2009, each and every franchisee shall pay an annual franchise fee by October 1 each year of the franchise term (and of any extension thereof) in the amount of \$7,500.00, with such franchise fee being increased by \$500.00 per year beginning October 1, 2010. Failure to remit the required annual franchise fee by the due date shall result in a one and one-half percent penalty per month on the balance due.
- (c) Beginning October 8, 2009, each and every franchisee whose primary business is limited to solid waste that requires special handling and management shall pay an annual specialized waste handling permit fee by October 1 each year of the franchise term (and of any extension thereof) in the amount of \$3,500.00 for the right to provide only specialized waste handling services within the city limits. If a franchisee is providing only specialized waste handling services within the city, then annual franchise fee will increase by \$500.00 per year beginning October 1, 2010. Failure to remit the required annual franchise fee by the due date shall result in a one and one-half percent penalty per month on the balance due.
- (d) Beginning October 1, 2015, each and every franchisee shall pay the city a \$500.00 safety inspection fee if a franchisee's vehicle(s) or equipment is believed to be defective, inoperable, substandard, or potentially unsafe in the determination of the solid waste director. This fee is for the municipal inspection of the vehicles and equipment being used by franchisee within the city. The applicable vehicles are those operated by franchisee within the city boundaries. The vehicles will include, but are not limited to, roll-offs, grapple trucks, front and rear end loaders, vactor trucks, dump trucks, trailers, and any other vehicles used for business, collection and disposal of any debris by the franchisee.
- (e) Certified recovered materials dealers excluded from local franchise requirements pursuant to F.S. § 403.7046 shall be required to submit an annual registration form and pay a \$100.00 registration fee per year beginning October 1st 2015 and each fiscal year thereafter.

(Ord. No. 10128, § 1, 7-10-86; Ord. No. 10440, § 3, 5-19-88; Code 1980, § 22-18.4; Ord. No. 11837, § 2, 9-28-99; Ord. No. 12258, § 2, 7-25-02; Ord. No. 12599, § 2, 10-14-04; Ord. No. 12835, § 2, 10-12-06; Ord. No. 13108, § 5, 10-8-09; Ord. No. 13194, § 2, 9-27-10; Ord. No. 13316, § 2, 3-8-12; Ord. No. 13531, § 2, 7-9-15)

Editor's note— Ord. No. 13316, § 2, adopted March 8, 2012, changed the title of section 22-50 from "Franchise fees; permit per account fee(s); annual franchise fee; annual specialized waste handling fee; annual safety inspection fee(s)" to "Franchise fees." The historical notation has been preserved for reference purposes.

Sec. 22-51. - Recycling requirements for franchisees.

Each and every franchisee shall submit the following to the solid waste director at the following intervals:

- (1) Annually, an "annual recycling plan" that describes recycling activities and services available to commercial and residential establishments in the city that are offered by the franchisee.
- (2) Annually, an "annual recycling report" that describes resources and money of the franchisee utilized in connection with the recycling program, a list of recycling accounts, and a list of accounts that do not avail themselves of the franchisee's recycling opportunities and reasons for same.
- (3) Quarterly, a report describing recycling and diversion goals and recycling/diversion accomplishments.
- (4) Annually, copies of literature provided to each customer in English, Spanish, and Creole describing the franchisee's recycling programs and services available.

Any franchisee servicing an address that engages in the sale of produce located within the produce market shall, no later than October 1, 2016, offer an organic waste recycling program. Said program shall utilize composting and/or any other organic waste recycling program which diverts organic waste from a disposal site to a city waste-to-energy facility.

All franchisees shall divert, at a minimum, a portion of organic waste collected to the city's waste-to-energy facility, should said facility become available in the future. The minimum required organic waste contribution to the city's waste-to-energy facility shall be set by the solid waste director as a percentage of the franchisee's total solid waste tonnage each year, effective October 1 of that year. Said percentage formula shall be uniform for all franchisees.

(Ord. No. 13531, § 2, 7-9-15)

Editor's note— Ord. No. 13531, § 2, adopted July 9, 2015, amended section 22-51 in its entirety to read as herein set out. Formerly, section 22-51 pertained to reimbursement for unused portion of permit and license, and derived from Ord. No. 10128, § 1, adopted July 10, 1986; Ord. No. 10440, § 5, adopted May 19, 1988; the Code of 1980, § 22-18.6; Ord. No. 11703, § 14, adopted September 28, 1998; Ord. No. 11837, § 2, adopted September 28, 1999, and Ord. No. 12885, § 1, adopted February 8, 2007.

Sec. 22-52. - Identification of equipment.

All equipment utilized to collect and transport solid waste in the city must be conspicuously marked on both sides of the automotive unit with the name of the hauler, tare weight, cubic yard capacity, and a decal issued by the city. Identification information must also be marked on all trailer and container units. All markings must be in letters and numerals at least two inches in height.

(Ord. No. 10128, § 1, 7-10-86; Code 1980, § 22-18.8; Ord. No. 12258, § 2, 7-25-02; Ord. No. 13531, § 2, 7-9-15)

Sec. 22-53. - Information required of franchisees.

- (a) At least annually and as determined by the director, each franchisee shall supply the following information on a form and in the manner prescribed by the director:
 - (1) A listing, as of the reporting date, of the names and addresses of customers and the addresses and folio numbers of each location served.
 - (2) An accounts receivable aging report for each customer within the city.
 - (3) The number and capacity of each dumpster and compactor per account.
 - (4) The address serviced by each dumpster and compactor.
 - (5) The list of accounts within the city for which hand collection of bags/cans is provided.
 - (6) The listing of city accounts that were charged-off as bad debts.
 - (7) A list of vehicles and equipment to be used in the city.
- (b) No property owner may share an account with another property owner.

(Ord. No. 10128, § 1, 7-10-86; Code 1980, § 22-18.9; Ord. No. 11837, § 2, 9-28-99; Ord. No. 12258, § 2, 7-25-02; Ord. No. 13194, § 2, 9-27-10; Ord. No. 13531, § 2, 7-9-15)

Sec. 22-54. - Change in required information.

Each franchisee shall file any change in its required information with the director in writing on a form prescribed by the director prior to becoming effective.

(Ord. No. 12258, § 2, 7-25-02)

Editor's note— Ord. No. 12258, § 2, adopted July 25, 2002, amended § 22-54 in its entirety to read as herein set out. Formerly, § 22-54 pertained to a change in rates and derived from the Code of 1980, § 22-18.10 and Ord. No. 10128, § 1, adopted July 10, 1986.

Sec. 22-55. - Disposal required at city- and/or county-approved facilities.

- (a) Any and all solid waste material collected by a franchisee within the city shall be disposed of only at the solid waste disposal facilities provided, operated and designated or approved by the department and/or the county public works department and at no other location or facility except those which have heretofore been approved by the State of Florida department of environmental protection.
- (b) All franchisees shall comply with the provisions of this chapter and all implementing resolutions of the city commission. The city shall use the reports required in this chapter and other information available to determine compliance of permit holders.

(Ord. No. 10128, § 1, 7-10-86; Code 1980, § 22-18.11; Ord. No. 12258, § 2, 7-25-02)

Sec. 22-56. - Franchise fee requirement; monthly franchise fee payment; approval by city commission as a prerequisite to issuance; financial statements, list of accounts; account permit fees; roll-off permit fees.

- (a) No person shall engage in the business of removing or disposing of garbage, trash, or waste from any premises in the city or transport garbage, trash or waste through the public rights-of-way of the city without first having secured a franchise for such activities. All persons shall be required to obtain a franchise from the city in order to engage in commercial solid waste collection and disposal from any streets, public rights-of-way or property in the city. This fee shall be in addition to the occupational permit tax ordinance of the city.
- (b) Effective October 1, 1994, all city-franchised commercial solid waste haulers will be required to pay to the city a franchise fee of eight percent of the franchisee's monthly total gross receipts. Said franchise fee shall be increased to 12 percent effective October 1, 1995, and to 15 percent effective October 1, 1996. Said franchise fee shall be further increased to 22 percent, effective October 1, 2004. Said franchise fee shall be further increased to 24 percent, effective October 8, 2009. The franchisee shall, on or before the last day of each month, deliver to the solid waste department a true and correct statement of gross receipts generated during the previous month from its services rendered within the city on or before the last day of each month. Payments of said fee shall be made on a monthly basis to the solid waste department, on or before the last day of each month, representing gross receipts collected the previous month. The franchisee shall on or before 90 days following the close of each fiscal year deliver to the director a certified statement of its annual gross receipts and charge-offs generated from accounts within the city prepared by an independent certified public accountant ("CPA"), admitted to practice in the state, reflecting gross receipts within the city for the preceding fiscal year. The CPA statement shall render an unqualified opinion, based on the result of the audit, relative to the franchisee's accounting of all revenues, fees and charge-offs generated from accounts and activities within the city limits. The franchisees will allow city auditors, during regular business hours after reasonable notice, to audit, inspect and examine the franchisees' fiscal books and records and tax returns, insofar as they relate to city accounts, to confirm the franchisees' compliance with this section. In the event the franchisee fails to pay the full franchise fee percentage of the franchisee's total monthly gross receipts, the city shall charge a penalty of one and one half percent per month on the outstanding balance until paid and additionally the franchisee shall have to pay all expenses of collection, including court costs and reasonable attorneys fees.
- (c) To effectively provide for the payment of said franchise fee by the franchisees to the city, any person seeking to renew his annual local business tax receipt pursuant to the provisions of chapter 31 of this Code shall, in addition to the requirements set forth therein, provide the city finance department with evidence of all fees imposed by the provisions of this chapter as a condition to reissuance or renewal of said business permit.
- (d) Issuance of a franchise shall require city commission approval for the franchise referenced in section 22-47 of this chapter.
- (e) The director is authorized to suspend, revoke, or cancel any such franchise for failure to comply with any of the terms hereof, in accordance with the same practice and procedures as are set forth in section 22-48 of this chapter; providing, however, that the director shall afford an existing franchisee a written notice reasonably specifying the reason(s) for the proposed revocation or suspension of an existing franchise, and the franchisee shall be afforded 14 business days to cure the noncompliance stated in such notice.
- (f) Any decision of the director under the terms of this section may be reviewed, upon written request of the aggrieved franchisee made to the city manager in accordance with the same time period and procedure as are set forth by section 22-49, City Code.

(Ord. No. 10440, § 7, 5-19-88; Ord. No. 11184, § 6, 10-27-94; Code 1980, § 22-18.12; Ord. No. 11444, § 2, 2-20-97; Ord. No. 11634, § 1, 4-14-98; Ord. No. 11837, § 2, 9-28-99; Ord. No. 12258, § 2, 7-25-02; Ord. No. 12599, § 2, 10-14-04; Ord. No. 12885, § 1, 2-8-07; Ord. No. 13108, § 5, 10-8-09; Ord. No. 13194, § 2, 9-27-10; Ord. No. 13531, § 2, 7-9-15)

Editor's note— Ord. No. 13194, § 2, adopted September 27, 2010, changed the title of section 22-56 from "Franchise fee requirement; monthly franchise fee payment; approval by director as a

prerequisite to issuance; financial statements, list of accounts; account permit fees; roll-off permit fees" to "Franchise fee requirement; monthly franchise fee payment; approval by city commission as a prerequisite to issuance; financial statements, list of accounts; account permit fees; roll-off permit fees." The historical notation has been preserved for reference purposes.

Sec. 22-57. - List of qualifications for franchises; term; nontransferability; rules and regulations; tests, inspections and audits.

- (a) The city may franchise commercial solid waste haulers as defined herein to provide service to commercial establishments as set forth in this article. The franchises issued, however, shall not limit the right to renew local business tax receipts prior to the effective date of this amendment and, further, will not impair existing written contracts between a franchisee and that of a commercial establishment which are in full force and effect on the effective date hereof and said contract does not exceed the effective date of the franchise. Each applicant for the franchise shall respond to a request for qualifications issued by the procurement department. The request for qualifications shall include, as minimum qualifications to be considered in the granting of such franchise:
 - (1) Certification that the applicant has satisfied all requirements of chapter 22 of the Code of the City of Miami.
 - (2) Certification that the applicant has never defaulted on any governmental franchises, contracts, permits or bid awards.
 - (3) Certification that no subsidiary affiliate, or parent corporation or business entity of the applicant already has, or has applied for, an existing franchise. Franchises will not be issued to a subsidiary, affiliate or parent company of an existing franchisee, or any franchisee.
 - (4) Certification that the applicant (or, if renewal, the franchise) is not and will not be, throughout the term that it has a franchise, affiliated with an affiliated entity of any existing franchisee, or any applicant for a franchise under this article, as a parent, or subsidiary, or by virtue of an interlocking directorate or otherwise.
- (b) Term. Said franchise shall be valid for a period of five years from date of issuance with one three-year option to renew, and, at the expiration or earlier cancellation or revocation thereof, the city may choose to accept applications for a new franchise conditioned and limited as noticed above or, in the alternative, renew the permit issued for an additional three one-year option periods. The option to renew said franchise for the additional three-year period shall be at the sole discretion of the city. In deciding to issue a new franchise and/or accepting applications from applicants for a franchise, the city will consider the following factors:
 - (1) The franchisee's full and faithful compliance with the terms of this chapter;
 - (2) The franchisee's and/or applicants who best meet the qualifications established by this section for the issuance of the franchise; and
 - (3) The current garbage, trash and waste disposal needs of the city, including, without limitation, population, demographic and geographic needs.
- (c) Transferability. The franchises granted pursuant to this section shall not be transferable by way of assignment, sale, pledge, or other conveyance. Upon change of ownership, including transference of a majority (51 percent or more) of stock and/or partnership shares, of any company to which a franchise has been issued, a new franchise will be granted by the city commission if the new owner satisfies the requirements of this article.
- (d) The franchise provided for by this article is to ensure and facilitate a minimum standard of municipal regulation of commercial waste collection within the city, to provide uniformity and quality of service from the franchises granted hereunder, and to assure that the citizens of Miami have safe, efficient, sanitary, permitted regulated and qualified solid waste, garbage and trash disposal contractors.

- (e) The city may, at reasonable times during the term hereof, inspect any franchisee's facilities and perform such test, as the city deems reasonably necessary, to determine whether the goods or services required to be provided by franchisee under its franchise conform to the terms thereof, if applicable. Each franchisee shall make available to the city reasonable facilities and render assistance to facilitate the performance of all tests and/or inspections by city representatives. All tests and inspections shall be subject to, and made in accordance with the provisions of this Code, as the same may be amended or supplemented from time to time. Each franchisee shall allow city auditors, during regular business hours and after reasonable notice, to audit, inspect and examine the franchisee's financial records (as they relate to city revenue) including all fiscal books and records, sales tax returns, bank statements, general ledger (vouching city revenue to the general ledger) contract(s)/agreement(s) between franchisee and customer(s) and any other financial information deemed necessary, in so far as such other financial information relates to city accounts, as well as the franchisee's entire customer base, in order to confirm the franchisee's compliance with its franchise agreement. Each franchisee shall pay a one and one-half percent penalty per month on any monies due and owing to the city, as a direct result of an audit, from whatever applicable revenue stream during the term of the franchise agreement. If a city audit reveals that a franchisee under-reported gross receipts, and the audit shows additional revenue due to the city in an amount per fiscal year of \$20,000.00 or more, franchisee shall pay to the city the cost of conducting the audit. Upon audit notification, a franchisee shall deliver all financial and other books and records to the city at no cost to the city. Each franchisee shall allow city auditors to copy any financial related source documents when deemed necessary to substantiate an audit finding.

(Ord. No. 10440, § 7, 5-19-88; Code 1980, § 22-18.13; Ord. No. 12258, § 2, 7-25-02; Ord. No. 12599, § 2, 10-14-04; Ord. No. 12885, § 1, 2-8-07; Ord. No. 13194, § 2, 9-27-10)

Editor's note— Ord. No. 12599, § 2, adopted October 14, 2004, changed the title of § 22-57 from "List of qualifications for franchises; term; nontransferability; rules and regulations" to "List of qualifications for franchises; term; nontransferability; rules and regulations; tests, inspections and audits."

Sec. 22-58. - Revocation of franchise.

- (a) The city reserves unto itself the power to revoke all franchises pursuant to this chapter of the Code.
- (b) The violation of any of the terms and conditions of this Code which endanger the public health, safety and welfare or the violation of any of the terms and conditions of the franchise shall be cause for revocation of a franchise.
- (c) The director may revoke a franchise for a violation or violations as aforementioned and may immediately declare such franchise null and void, and upon such declaration, franchisee shall immediately cease all operations, and shall be considered to have forfeited said franchise and the rights acquired thereunder. Should the director decide to revoke a franchise, he/she shall provide the franchisee with notice of such revocation and the reasons therefore. Upon receipt of such notice, the franchisee may appeal said revocation to the city manager or the city manager's designee and the appeal and hearing thereon shall be conducted in accordance with the procedures set forth in section 22-49.

(Ord. No. 10128, § 1, 7-10-86; Code 1980, § 22-18.14; Ord. No. 11837, § 2, 9-28-99; Ord. No. 12599, § 2, 10-14-04; Ord. No. 13194, § 2, 9-27-10)

Sec. 22-59. - Procedure upon violation of sections 22-46 through 22-58.

Any violation of sections 22-46 through 22-58 herein may result in action taken by the director pursuant to section 22-93 herein, and such action shall be cumulative in nature and not the exclusive action available to the director.

(Ord. No. 10128, § 1, 7-10-86; Code 1980, § 22-18.15)

Secs. 22-60—22-85. - Reserved.

APPENDIX G – LETTERS OF SUPPORT

August 28, 2019

Mary Beverly, Interim Director
Craig Wood, Solid Waste Management Coordinator
11811 S. Sunset Drive, Suite 2700
Olathe, KS 66061

RE: Solid Waste Management Plan, 2019

At their meeting on August 27, 2019, the Planning Commission reviewed the proposed Johnson County Solid Waste Management Plan, 2019 (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.

The Comprehensive Plan's 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 the Planning Commission's finding, please let me know.

Respectfully;



Jay C. Leipzig, AICP
Director, Planning, Development and Codes

Attachment: Analysis of the Solid Waste Management Plan dated August 20, 2019

Cc: Board of County Commissioners
Penny Postoak Ferguson, County Manager
Maury Thompson, Deputy County Manager

August 20, 2019

To: Johnson County Planning Commission

Fr: Jay C. Leipzig, AICP, Director, Planning, Development, and Codes

Re: Solid Waste Management Plan – 2019 Update

Introduction: The *Johnson County Solid Waste Management Plan (SWMP)* is required by the Kansas Department of Health and Environment (KDHE) to be updated every five years as set forth by the Kansas statutes. These statutes call for the Johnson County Planning Commission to review the SWMP for consistency with the *Rural Comprehensive Plan (Comprehensive Plan)* as part of the update process.

The Comprehensive Plan: The Comprehensive Plan sets forth a planning framework to guide development within the County. The following are relevant elements of the Comprehensive Plan to consider while reviewing the SWMP:

Environmental Quality: Johnson County's city and rural residents place a high value on the protection and enhancement of open spaces and the natural environment. The SWMP's emphasis on reducing solid waste generation and promoting recycling supports the protection of the environment.

Citizen Participation: The County is committed to making development decisions predictable, fair and cost-effective by encouraging community and stakeholder information sharing, problem solving, and collaboration in the decision-making process. The proposed SWMP has undergone an extensive citizen participation process. The SWMP has been developed in coordination with the Johnson County Department of Health and Environment (JCDHE) staff and the Solid Waste Management Committee (SWMC). The SWMC is comprised of representatives from across the solid waste sector, representing local governments, environmental organizations, and private sector solid waste haulers, processors, and disposal facilities.

Local and Regional Coordination & Coordinated Approach to Development: As indicated above, the SWMP was developed in coordination with representatives from across the solid waste sector, including area local governments.

Adequate and Cost Effective Infrastructure and Public Services: Planning for implementing an integrated solid waste management system is a complex and challenging endeavor requiring the consideration of many factors: technological, institutional, legal, social, economic, and environmental. As the County pursued solutions to its solid waste management challenges, it became clear that no single strategy, technology, or program offers a complete solution. The SWMP proposes a combination of methods to provide for appropriate and cost-effective management of the varying types of solid waste in accordance with the unique properties of these various solid waste stream components.

Recommended Finding and Motion:

I move that this planning commission adopt a finding, to be forwarded to the Board of County Commissioners of Johnson County, Kansas, that the planning commission finds the proposed *Johnson County Solid Waste Management Plan* to be consistent with the goals of the *Rural Comprehensive Plan* which include: 1) upholding environmental quality, 2) promoting citizen participation, 3) promoting local

and regional coordination, 4) adopting a coordinated approach to development, and 5) providing adequate and cost effective infrastructure and public services.

Planning, Development & Codes

July 16, 2019

Mary Beverly, Interim Director
Craig Wood, Solid Waste Management Coordinator
11811 S. Sunset Drive, Suite 2700
Olathe, KS 66061

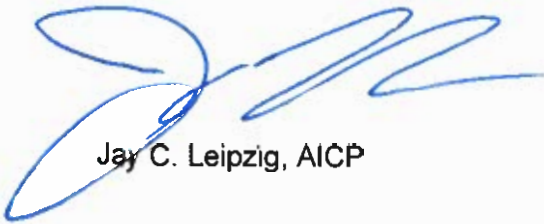
RE: Solid Waste Management Plan, 2019

I have reviewed the proposed Johnson County Solid Waste Management Plan, 2019 (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.

The Comprehensive Plan's 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.

Respectfully;



Jay C. Leipzig, AICP

Cc: Board of County Commissioners
Penny Postoak Ferguson, County Manager
Maury Thompson, Deputy County Manager

July 1, 2019

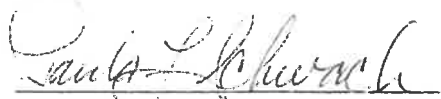
We the undersigned Mayors of Johnson County municipalities appreciate the efforts of the County, its consultant Burns & McDonnell, and the Solid Waste Management Committee, in developing an updated Johnson County Solid Waste Master Plan (the "SWMP Update"). While we appreciate that the County has made significant progress in increasing diversion among certain sectors, such as single-family residential and yard waste, we encourage the County to adopt specific recommendations for improvements to diversion and recycling in other sectors.

Specifically, we support the 2019 SWMP Update and its focus upon:

- Developing strategic education programs for single family residents on recycling and organic waste diversion.
- Providing sample ordinance language for municipalities related to multi-family residential complexes implementing recycling.
- Implementing a plan, ordinance, and phasing plan requiring haulers: (1) to provide recycling and organics collection for recycling along with refuse collection services for commercial at a single cost, (2) to become licensed through the County, and (3) to report the amount of refuse, recyclables, and organics collected on an annual basis.
- Requiring recycling of materials from County-funded construction and demolition projects.
- Developing guidance documents for municipalities, which documents provide options for incentives, changes to ordinances and codes, and applicable case studies to increase diversion and/or reuse of construction and demolition materials.
- Encouraging development of a mixed construction and demolition debris sorting and processing facility
- Encouraging minimization and diversion of organic waste, including incentives to municipalities for pilot programs to utilize existing organic waste.

Further, we appreciate that single family household recycling has been increasingly successful within the county. In order to ensure that our residents' expectations are being met, we wish to require accountability and transparency from our haulers in their methods of recycling. Thus, if a hauler is able to utilize a county landfill, it should also be able to provide specific and transparent information to municipalities to ensure that recyclable materials are being properly diverted.

Sincerely,



Mayor Paula Schwach

Mayor Melanie Hepperly

July 1, 2019

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Sincerely,

Mayor Paula Schwach



Mayor Melanie Hepperly



Mayor Mike Kelly

Mayor John Yé

Mayor Ken Sissom


Mayor Robert Tietze

Mayor Ron Appletoft

Mayor Eric Mikkelson

Mayor David Dickey

Mayor Mike Kelly



Mayor John Ye

Mayor Ken Sissom

Mayor Robert Tietze

Mayor Ron Appletoft

Mayor Eric Mikkelson

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