

MEMORANDUM

To: Board of County Commissioners
Through: Penny Post oak Ferguson, County Manager
From: Charlie Hunt, Director
Department of Health and Environment
Date: February 8, 2024
Re: Update on solid waste management planning

On January 10, 2024, The Mid-America Regional Council (MARC) released its *Regional Landfill Capacity Study*.¹ The purpose of the study, which was commissioned by MARC and performed by Burns & McDonnell, was “to forecast regional landfill capacity and to inform solid waste planning, programming, and permitting activities at the state, regional, and local levels.”

The purpose of this memorandum, the content of which was prepared by Mary Beverly, Environmental Health Division Director, and Trent Thompson, Solid Waste Program Manager, is to highlight key findings from the MARC study and provide an update regarding solid waste planning in Johnson County.

WHO is responsible for waste management in Johnson County?

The Johnson County Solid Waste Management Committee (SWMC) was appointed by the Board of County Commissioners (BOCC) to be responsible for Solid Waste Planning for the County. Every county in Kansas is required to manage solid waste through K.S.A. 65-3405 and the plan must be adopted by the governing body. Every five years, the plan is reviewed and updated as submitted by the SWMC through Johnson County Department of Health and Environment (JCDHE) staff to the BOCC. The Plan is also reviewed annually by the SWMC and an update is provided to the BOCC through a note for the record. The current five-year plan was published in 2019.²

The JCDHE Environmental Solid Waste Program staff serve as subject matter experts to the SWMC. The SWMC meets every other month and is represented by city staff, industry experts and public members. JCDHE Solid Waste staff attend each meeting to keep the committee informed of progress on the solid waste plan for Johnson County and to develop the annual update on the plan for the BOCC.

WHAT is the concern?

Most of the solid waste generated in Johnson County, including approximately 80 percent of residential solid waste, goes to the Johnson County Landfill (JCL), which began operating in 1967 and is owned and operated by WM (Waste Management) (Formerly owned by Deffenbaugh Enterprises). This municipal landfill is beginning to fill its last cell which was permitted in 2023. According to the most recent available data, the estimated remaining capacity of the JCL landfill as of December 31, 2021 was 28,388,718 tons. The estimated JCL closure based on regional landfill studies is anywhere between 2037 (based on worst case scenario assumptions) to 2043.

¹ Mid-America Regional Council. (2024, January 10). *Regional Landfill Capacity Study*.

<https://www.marc.org/document/landfill-capacity-study>

² Johnson County Department of Health and Environment. (2019, July 29). *Solid Waste Management Plan: 2019 Update*.

<https://www.jocogov.org/sites/default/files/files/2022-06/2019%20Johnson%20County%20SWMP%20Update-%20Accessibility%20version.pdf>

Estimates of closure dates are based on the volumes of materials that are landfilled, how the materials are compacted, the geology of the land, the timeline for breakdown of materials and projected population growth. The diversion of usable/recyclable materials and organics diversion from the landfill will help to preserve the life of the landfill and could potentially delay this closing date. The state solid waste plan has projected a closure of the WM landfill at approximately year 2040 based on the 2020 Kansas Solid Waste Management plan report.³

As part of the 2024 update to the Solid Waste Management Plan, JCDHE hired Burns & McDonnell to conduct a solid waste study for Johnson County that considers the life of the Johnson County Landfill. Part of this process is identifying an approach to the diversion of recyclable materials and compost infrastructure to increase the landfill's capacity. Information gleaned from this study will be helpful for the county to understand what solid waste management will look like 20 years into the future.

As noted above, Burns & McDonnell also recently conducted a Regional Landfill Capacity Study to forecast the regional landfill capacity, which includes JCL. Results from scenarios outlined in the study indicated the region has anywhere from 19 to 37 years of landfill capacity remaining, and JCL could close anywhere between 2037-2041 (13-17 years) depending on the scenario. The "worst case" scenario closure date is earlier than previous studies have indicated.

WHERE does the waste currently go?

The JCL is located in Shawnee, Kansas and is permitted by Kansas Department of Health and Environment (KDHE) – Permit 263 and by Johnson County Health and Environment – Permit 23-05. Nearly all Johnson County waste is landfilled at the WM landfill. Some waste could go to other nearby landfills depending on the private hauler's route.

HOW will the waste be managed after landfill closure?

LANDFILL MODEL

Environmental impact and infrastructure studies would be required before siting a landfill. A landfill in Johnson County would need to be large enough to fulfill the needs of the region.

The WM landfill (aka JCL) is 850 acres with one active cell. If another landfill would be sited in JoCo there would be many requirements that could take at least 10 years to complete (including, but not limited to): Geological studies, aquifer study, public health studies, community engagement, planning for water, sewer, stormwater runoff, floodplains, watershed planning, buffer zones, gas management system, KDHE permitting, EPA permitting and County permitting, as consistent with SWMP.

- It is undetermined at this time if WM will look to site another landfill or use a transfer station model. The WM company has not revealed their plans for managing Johnson County waste beyond the estimated closure of the landfill. However, the waste would be appropriately managed through the Johnson County Solid Waste Committee planning and regulation of solid waste infrastructure would continue to be conducted by JCDHE and KDHE no matter the model.
- It is undetermined if Johnson County Government would consider siting a municipal landfill that would be owned and operated by the county.

TRANSFER STATION MODEL

Per the MARC study a statement was made on page 12 that "transfer stations play a critical role in the efficient transportation of waste from collection routes to disposal facilities. The community is already transferring waste from populated areas to landfills located further away. Transfer station infrastructure will continue to be important as landfills close."

³ Kansas Department of Health and Environment. (n.d.). *2021-2025 State Solid Waste Management Plan*. <https://www.kdhe.ks.gov/DocumentCenter/View/22543/2021-2025-State-Solid-Waste-Management-Plan>

The permitting process and design plans would have to be submitted to KDHE and JCDHE for approval. Transfer stations are not required to have liners, but an impervious pad to receive waste that is temporarily placed and compacted before being trucked off the transfer site to a landfill. Transfer stations have a much smaller footprint than a landfill. For instance, a transfer station could be anywhere between 5 and 25 acres typically.

Cost studies have not yet been performed to understand the cost of siting a landfill in Johnson County and its feasibility versus a transfer station model. Land capacity/space is undetermined for Johnson County until it is determined if Johnson County government would want to site their own landfill or continue to rely on private industry.

SOLID WASTE MANAGEMENT FOR ANY PENDING MODELS

The Burns & McDonnell study performed this year for Johnson County may reveal information regarding the different possible scenarios for waste models in Johnson County and this will help the county's planning efforts.

The MARC regional study document (page 15) summarizes the situation and challenges we face:

- The scenarios indicate the region has anywhere from 19 to 37 complete years of landfill capacity remaining. At the low end there is adequate time to plan for a future solid waste management system in a strategic, thorough, and methodological process that considers more factors than landfill capacity alone. Over the next five years, the confidence in scenarios with additional capacity may improve such as the opening of Presidio Landfill or expansion permitting of existing landfills.
- Solid waste facilities including landfills and transfer stations involve a rigorous permitting process that requires a minimum of five years but more likely, takes ten years or more. The appropriate amount of time should be allotted to plan, permit, and develop solid waste infrastructure to serve the region.
- The region's solid waste management system is reliant on private sector landfills except for St. Joseph Landfill. The community's heavy reliance on private sector landfills makes it challenging for municipalities to take charge of their own waste management system and costs.
- As landfills close, the solid waste system will become more reliant on transfer stations and new transfer station infrastructure. The region is already accustomed to transferring waste through transfer stations to landfills outside of the densely populated urban areas.
- As landfills reach capacity and close over time, the region will become more reliant on Kansas landfills, particularly HAMM Landfill, as it has the most capacity currently available.

An excerpt from the Burns & McDonnell proposal to the Johnson County Solid Waste Planning RFP, states on page 6:

Facilities: Identify current public and private solid waste and recycling facilities located within the County, as well as in the nearby area. Facilities would include landfills, transfer stations, single-stream MRFs and composting facilities. Our research will estimate tipping fees and long-term capacities for each facility. We will identify future infrastructure needs over a 25-year period to appropriately influence waste diversion.

Johnson County Landfill Capacity Analysis: A significant portion of Johnson County waste flows through Waste Management's Johnson County Landfill (JCL) which is projected to reach capacity near 2043. We will conduct an analysis of the impacts of the closure of JCL to inform the long-term infrastructure needs for the community.

CONCLUSION

Findings from the recent MARC Regional Landfill Capacity Study reinforce an important point: landfills are a finite resource and there must be a concerted effort to not only plan for the eventual closure of regional

landfills, but to develop and implement strategies to prolong their lifespan through recycling, composting and other diversion strategies. JCDHE will continue to work with the Solid Waste Planning Committee and other partners to ensure Johnson County can effectively plan for and manage solid waste in the short- and long-terms.