

Regional Landfill Capacity Study



Mid-America Regional Council

Solid Waste Management District

Agenda

- Organizational Background:
 - MARC & Solid Waste Management District(SWMD)
 - Burns & McDonnell
- Landfill Capacity Study Background
- Landfill Capacity Study Results
- Q & A

Summary of Study

- Need for a new landfill is not imminent
- Projected 19 – 37 years of landfill capacity remaining
- MARC will initiate revision of the regional solid waste management plan in 2024

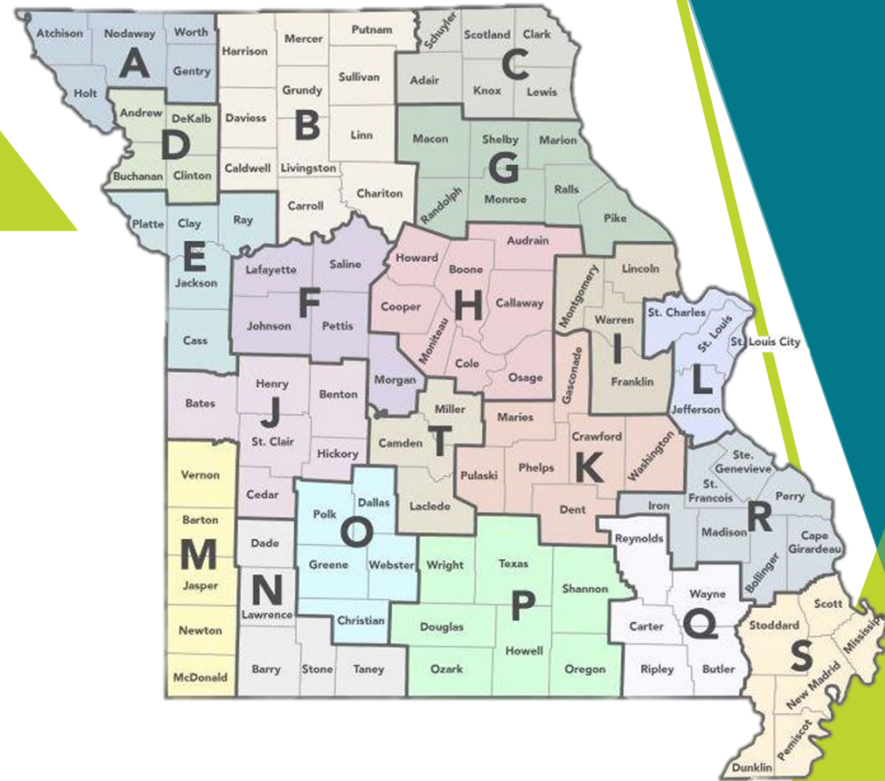


Organizational Background

MARC

Solid Waste Management District

- Regional solid waste planning agency
- Includes Cass, Clay, Jackson, Platte, and Ray (MO)
- Works cooperatively with Johnson, Leavenworth, Miami & Wyandotte (KS)
- One of 20 districts in the state of MO
- 14-member Executive Board
- Management Council comprised of local officials
- MARC provides administrative services



Solid Waste District Programs


- The Regional Household Hazardous Waste Collection Program
- Grants to the public, private and nonprofit sectors
- Regional solid waste planning
- Technical assistance to local private and public entities
- Recycling information through RecycleSpot.org and the Recycling Hotline at (816) 474-TEAM
- Food waste reduction strategies
- Illegal dumping action planning

Solid Waste District Role

- Non-regulatory
- No formal role in the development, siting or expansion of landfills or waste transfer stations
- Landfills and transfer stations are governed by state and local permitting and zoning processes
- Missouri Department of Natural Resources
- Individual city and county governments

Burns & McDonnell

- Engineering, Architecture, & Consulting Services
- Solid Waste & Resource Recovery Practice Since 1970
- Headquartered here in Kansas City - 3,200 Employees
- Solid waste practice exclusively works with state/local governments to avoid conflict of interest



Landfill Capacity Study Background

Study Process

- Data review and analysis (October 2023)
- Focus groups with public and private sector leaders (November 2023)
- Modify analysis based on focus group input (December 2023)
- Finalize study (January 2024)



Purpose of the Landfill Capacity Study

What it IS

- Inform regional planning
- Inform state and local solid waste permitting activities
- Inform area local governments in their own planning, programming, and permitting
- A prelude to revising the Regional Solid Waste Plan

What it is NOT

- Not part of any permitting process
- Does not include financial analysis
- Not a study of any specific landfill expansion or proposed landfill

Background Information

Landfills 101

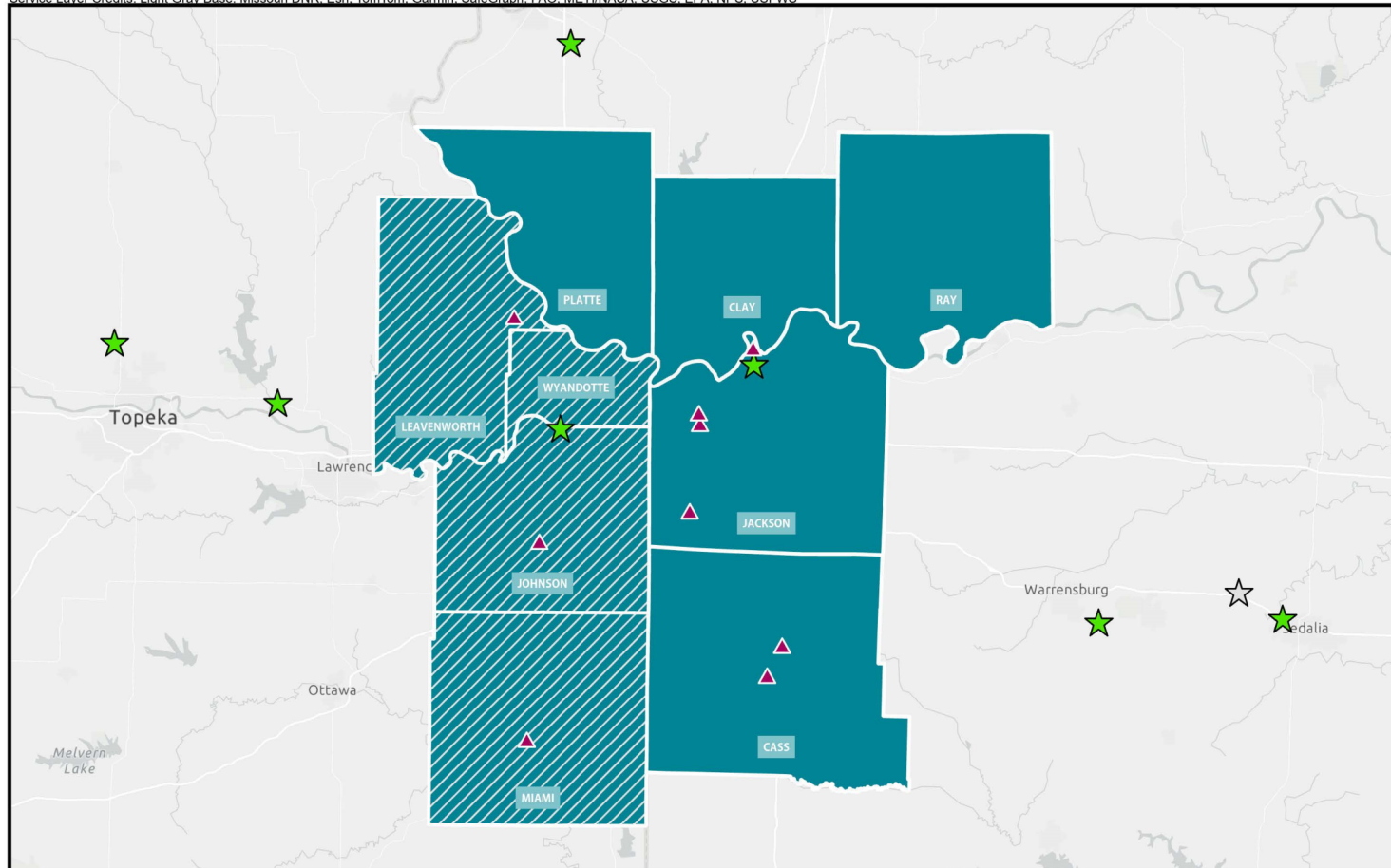
- Landfills are regulated under Resource Conservation and Recovery Act (RCRA) Subtitle D since 1992
- Inherently pose environmental risk and potential consequences
- Designed, engineered, and managed to mitigate environmental risk
- Includes environmental monitoring during operation and a minimum of 30 years post-closure
- State and local governments are the primary planning and regulating authority



Background Information

Transfer Stations 101

- Industrial facility for the consolidation of waste for transfer to final destination
- Inherently pose environmental risk and potential consequences
- Designed, engineered, and managed to mitigate environmental risk
- Consistent with state & local regulations and solid waste management plans



Transfer Stations	MARC SWMD Counties - MO
Presidio Landfill	MARC Counties - KS
Existing Landfills	

15 7.5 0 15
Miles



MARC Solid Waste Management District:
Landfills and Transfer Stations

Regional Solid Waste Facility Locations



Regional Landfills

State	Landfill Name	Owner	3-Year Average Annual Acceptance (CY)	Remaining Capacity (CY) as of Dec. 31 st , 2021
KS	HAMM	N.R. HAMM	756,855	54,460,947
KS	Johnson County	Waste Management	1,517,548	28,388,718
KS	Rolling Meadows	Waste Management	285,909	12,927,101
MO	Central Missouri	GFL	836,006	8,121,597
MO	Courtney Ridge	Republic	822,480	16,030,814
MO	Show Me Regional	Republic	181,228	3,817,270
MO	St. Joseph	City of St. Joseph	297,634	9,056,437
MO	Presidio	Pettis County Development Co.	N/A	18,600,000 ¹
Total			4,697,660	151,402,884

1. Proposed Capacity,; Permit Pending



Kansas & Missouri Stats

State	Remaining Capacity (CY)	Annual Acceptance (CY)
Kansas	95,700,000	2,600,000
Missouri	37,000,000	2,100,000

- Missouri and Kansas have similar annual acceptance quantities
- Kansas has 72% of the remaining capacity



Landfill Capacity Scenarios

Key variables underlying scenarios

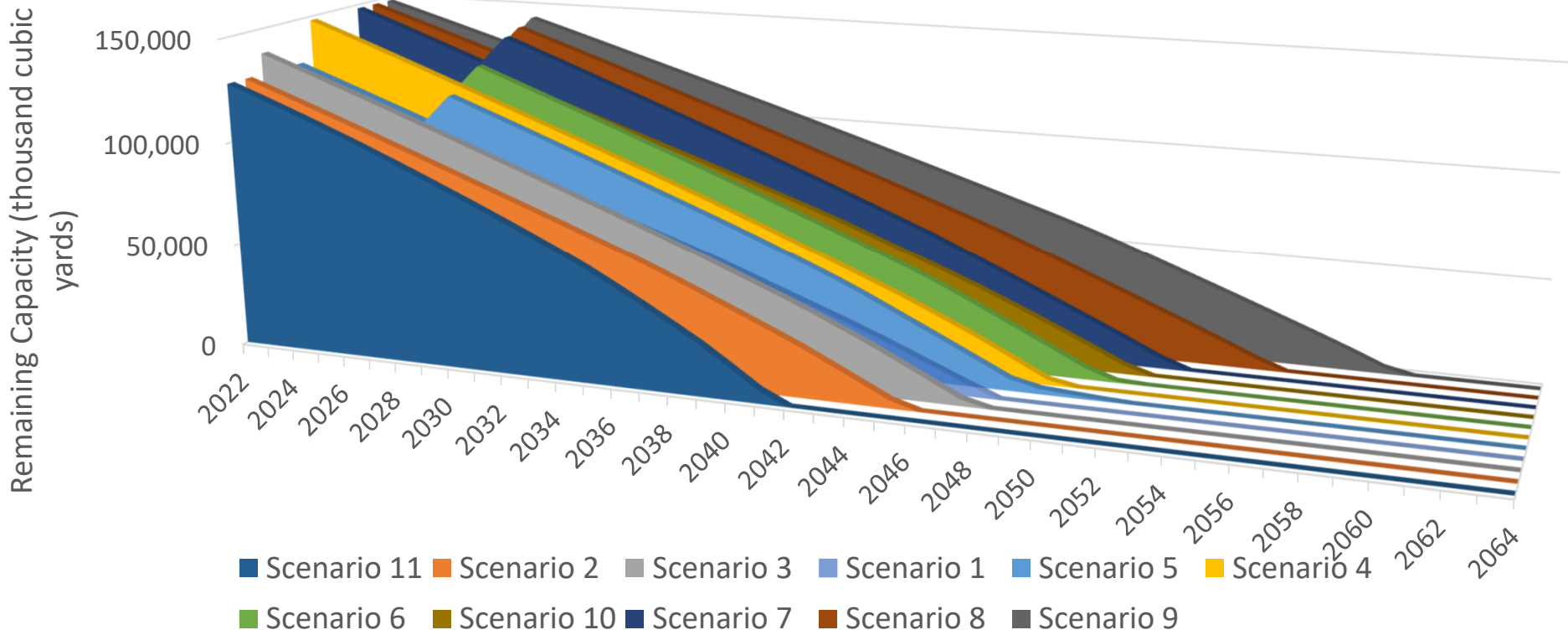
- **Population growth**
- **Expanded capacity scenarios**
- **Presidio landfill**
- **Waste diversion rates**
- **Waste generation rates**

Scenarios Overview

Scenario	Population Growth	Expansion	Presidio Landfill	Additional Waste Diversion	Waste Generation Growth	Years of Capacity ¹	Final Year ²
1						25.9	2048
2	●					23.6	2046
3	●	10 MCY				25.5	2048
4	●	20 MCY				27.4	2050
5	●		●			26.9	2049
6	●	10 MCY	●			28.8	2051
7	●	20 MCY	●			30.6	2053
8	●	20 MCY	●	10%		33.7	2056
9	●	20 MCY	●	20%		37.5	2060
10	●		●	10%		29.7	2052
11	●				●	19.7	2042

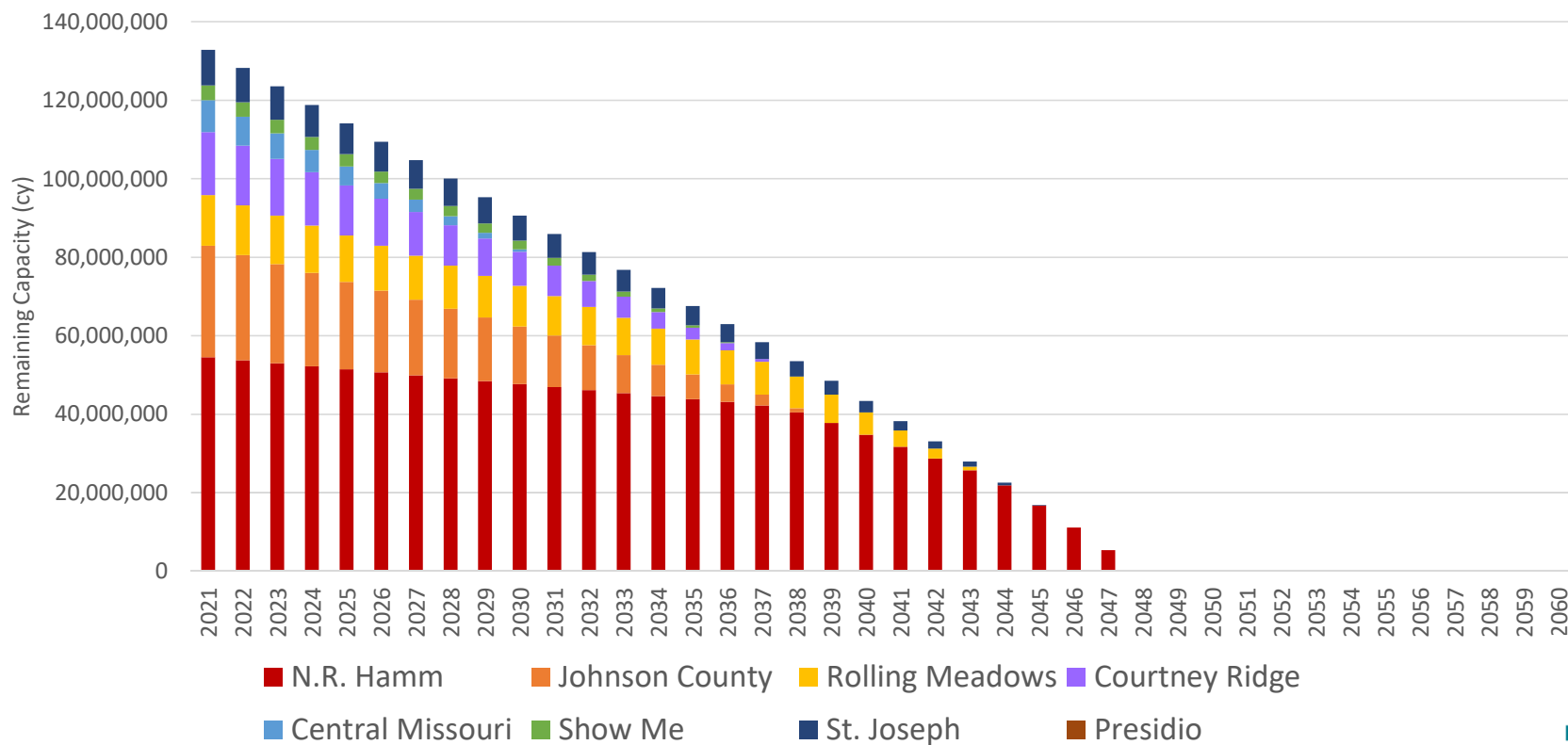
1. As of Dec 31, 2022
2. Represents last year of waste acceptance, regardless of month

Comparison of Scenarios



Scenario 1 – Status Quo

No projected growth, no additional landfill capacity

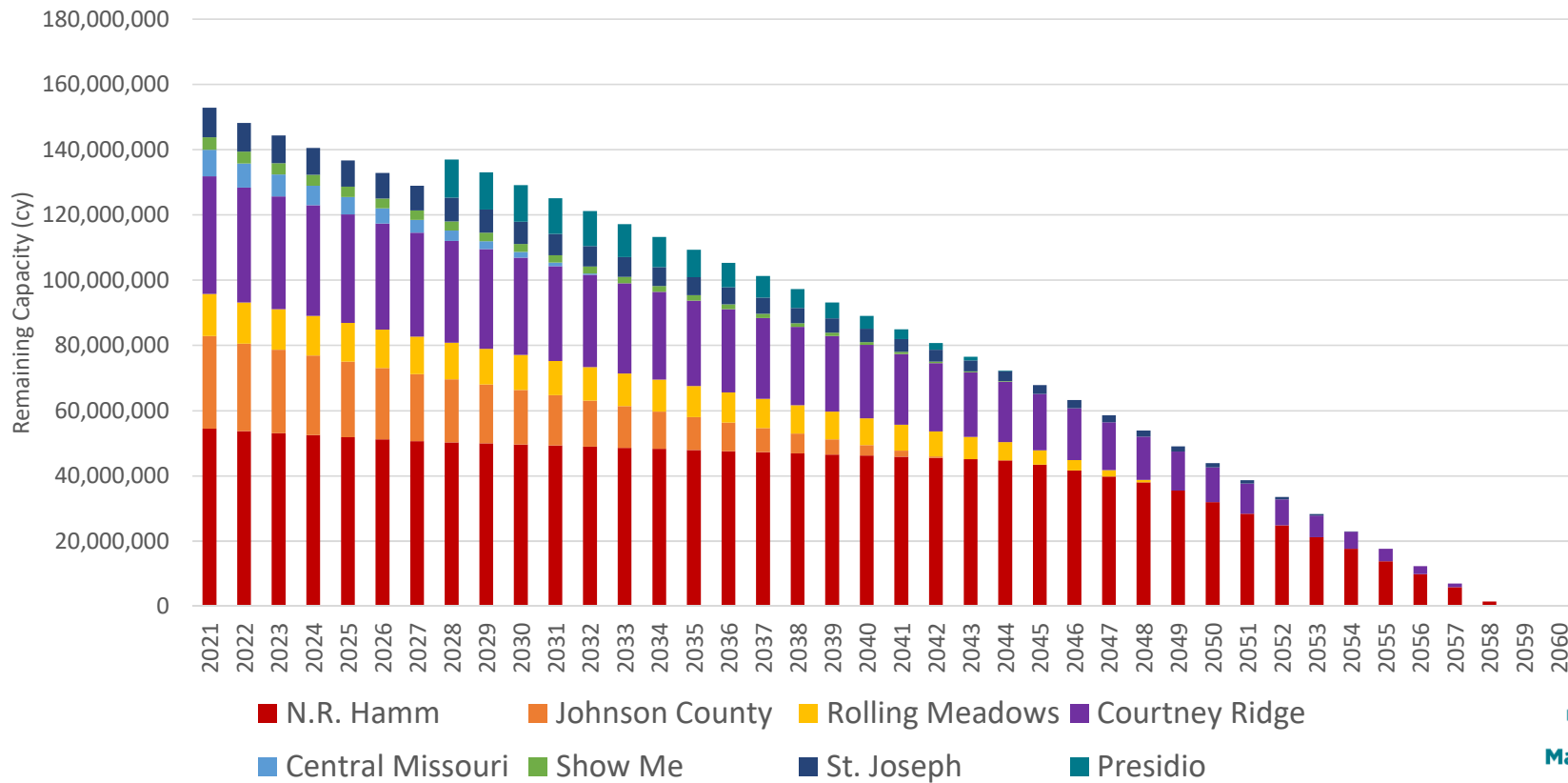


Scenario 2 – Population Growth

State	Landfill	Final Year
KS	HAMM	2045
KS	Johnson County	2037
KS	Rolling Meadows	2041
MO	Central Missouri	2030
MO	Courtney Ridge	2036
MO	Show Me Regional	2035
MO	St. Joseph	2043
MO	Presidio	N/A

Scenario 9 (Best Case)

With projected growth, 20 MCY additional landfill capacity, Presidio landfill, 20% additional waste diversion



Summary of Study

- Anywhere from 19 – 37 years of landfill capacity remaining
- Substantial number of unknown factors that could impact the capacity
- A revision to the regional solid waste management plan is a recommended next step and may include:
 - Community engagement
 - Setting goals and objectives
 - Analysis of strategies: impact on diversion, financial impacts, acceptance by community, feasibility, regulatory
 - Facility evaluation: material recovery facilities, organics management, transfer stations, landfills

Summary of Study (Cont'd)

- Landfills and transfer stations involve a rigorous permitting process of 5 to 10 years; time should be allotted to plan, permit, and develop solid waste infrastructure
- The region's solid waste management system is reliant on private sector landfills except for St. Joseph Landfill.
- As landfills close, transfer stations will play a critical role. The region is accustomed to transferring waste.
- Over time, the region will become more reliant on Kansas landfills, particularly HAMM Landfill.
- Landfill closures will impact communities differently depending on proximity.
- Recycling and composting can lengthen the capacity of landfills.

Sources

- Kansas Department of Health and Environment, Bureau of Waste. 2021 - 2025 State Solid Waste Management Plan. <https://www.kdhe.ks.gov/DocumentCenter/View/22543/2021-2025-State-Solid-Waste-Management-Plan>
- Kansas Department of Health and Environment. Solid Waste Database Viewer. <https://maps.kdhe.state.ks.us/kssolidwaste/>
- Missouri Department of Natural Resources, Waste Management Program. 2018 – 2022 Tonnage Reported and Fees Paid by Facility. <https://dnr.mo.gov/document-search/sanitary-landfills-tonnage-reported-tonnage-fees-paid>
- Fitch, Charlene S. Missouri Department of Natural Resources, Waste Management Program. “Remaining Airspace in Missouri Sanitary Landfills” Presentation 2023.
- Mid-America Regional Council, Regional Data Tool. Population and Employment Forecast. <https://gis2.marc2.org/forecast/>
- Pettis County Development Company website accessed 11/21/23. <https://pettiscountygoinggreen.com/>



Questions?