

**EXECUTIVE SUMMARY  
OBSERVATIONS AND POLICY RECOMMENDATIONS**

The observations and policy recommendations in this document are derived from a report prepared for the Mid-America Regional Council Solid Waste Management District (SWMD) by Franklin Associates, a Division of ERG. The full report includes extensive data and analyses of current and projected solid waste management in the Region, as well as information on emerging markets for recovered materials, emerging technologies, and funding strategies.

In this summary document, the findings and observations of the report are presented in a condensed format. Franklin Associates developed policy recommendations based on these findings for consideration by the SWMD.

**Current Solid Waste Management and Facilities in the Region**

***Observations***

***Transfer and Disposal Facilities.*** Transfer and disposal facilities in the MARC region are summarized in Table ES-1. Municipal solid waste landfills dispose of most of the

**TABLE ES-1  
REGIONAL SOLID WASTE TRANSFER AND DISPOSAL FACILITIES  
(Number of facilities and tons managed, 2002)**

	<u>Missouri (1)</u>		<u>Kansas</u>		<u>Managed in the Region</u>	
	<b>No.</b>	<b>Tons</b>	<b>No.</b>	<b>Tons</b>	<b>No.</b>	<b>Tons</b>
Transfer stations (2)	3	100	4	110,130	7	110,230
MSW landfills	2	371,520	2	1,988,500	4	2,360,020
C&D landfills (3)	1		12	377,650	13	377,650
Industrial waste landfills (4)	4	na	4	14,570	8	14,570
Waste tire facilities			5	7,640	5	7,640
Medical waste incinerator			1	3,320	1	3,320
HHW facilities (5)	2	570	5	360	7	930

na = not available

(1) Number of Missouri facilities includes proposed facilities. Tonnage data incomplete for Missouri.

(2) One Missouri transfer station is proposed. Missouri transfer station tonnage only includes waste crossing state lines.

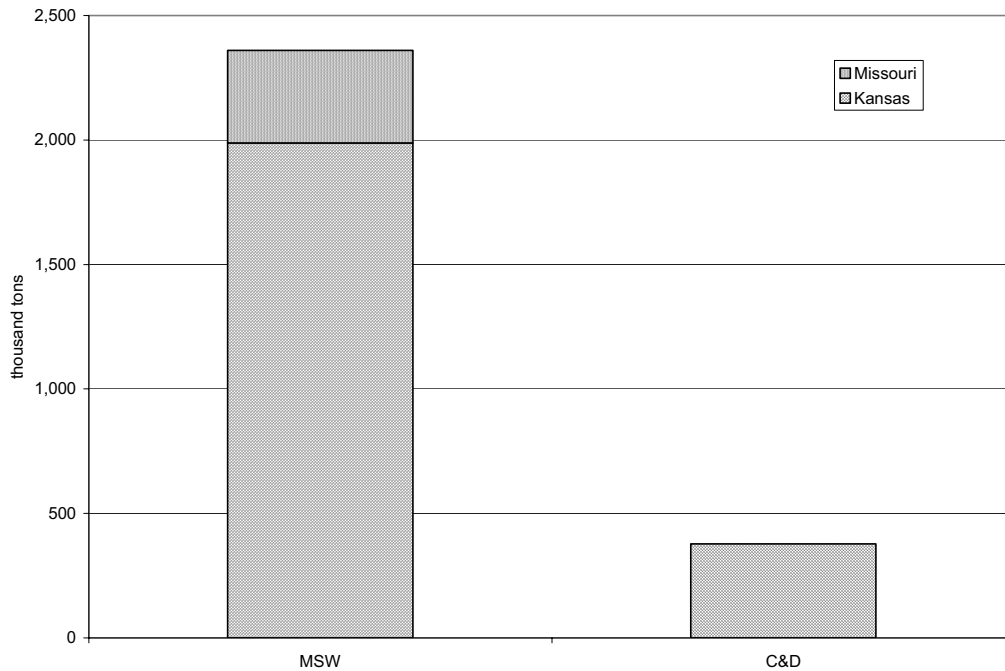
(3) Missouri C&D landfill is proposed.

(4) Industrial landfills or special use landfills. Two industrial landfills are proposed in Missouri.

(5) HHW - household hazardous waste

solid waste tonnage in the region. Solid waste disposed in MSW and construction and demolition (C&D) landfills – the landfills that dispose of most of the tonnage in the region – is shown graphically in Figure ES-1. Kansas dominates in both number of facilities and tons disposed.

**Figure ES-1. Solid waste disposed in MSW and C&D landfills, 2002**



Because of the large disparity in Kansas and Missouri disposal facilities, over 630,000 tons of Missouri wastes were disposed in Kansas in 2002 (Table ES-2).

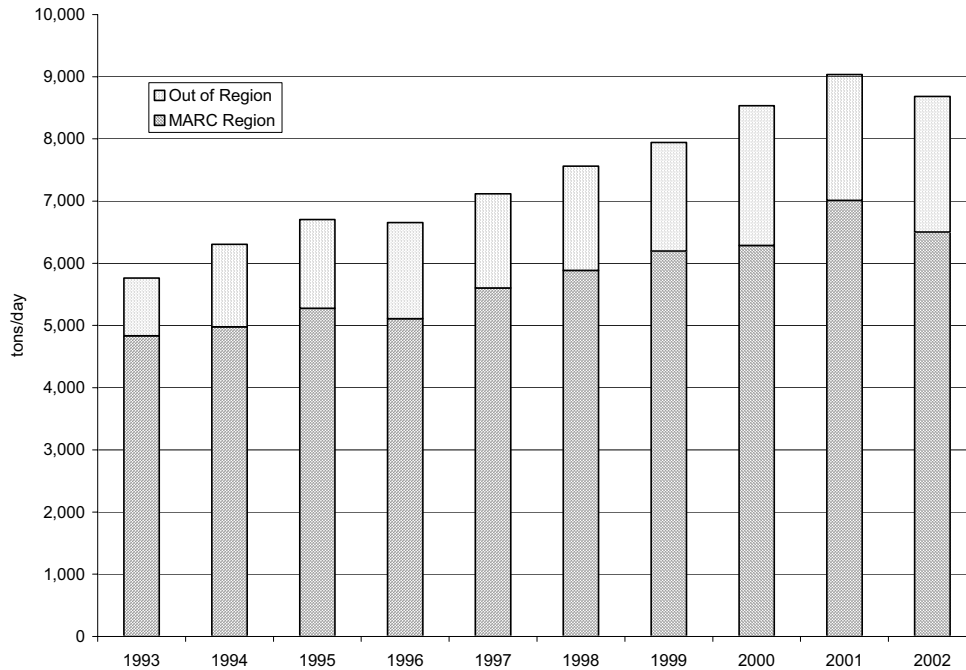
**TABLE ES-2  
MISSOURI WASTE DISPOSED IN KANSAS FACILITIES  
In 2002 tons**

	<b>From MARC SWMD</b>	<b>From Outside SWMD</b>	<b>Total</b>
Municipal solid waste	384,440	92,800	477,240
Construction & demolition waste	53,420	590	54,010
Special wastes	63,910	970	64,880
Tires	11,750	22,210	33,960
Industrial wastes*		90	90
<b>Total</b>	<b>513,520</b>	<b>116,660</b>	<b>630,180</b>

\*Some industrial wastes are included in the special waste category and not reported separately.

Historical tonnage of MSW landfilled in the MARC region plus four facilities not far from the region is shown in Figure ES-2. Tonnage disposed has grown steadily, except for a decrease in 2002.

**Figure ES-2. Historical landfill tonnage**



Data on projected lifespans of landfills in the region are shown in Table 3. It is apparent that landfill capacity will be limited in the future, especially on the Missouri side.

**TABLE ES-3  
LIFESPANS OF MSW LANDFILLS IN AND AROUND THE MARC REGION**

Landfill	State	MARC Region	Life Span
City of Lee's Summit	MO	In	2014
Courtney Ridge	MO	In	2026
Show Me Regional	MO	Out	2043
St. Joseph	MO	Out	2028
Forest View	KS	In	< 2 years
Hamm	KS	Out	2141
Johnson County	KS	In	2027

***Diversion Facilities.*** Diversion facilities identified for this report include reuse, recycling, composting, and end users of recovered materials. Collectors and brokers/dealers for recovered materials may or may not have facilities where the materials are taken, but they were included when identified.

Diversion facilities identified in the Region are shown in Table ES-4. The majority of the facilities are in Missouri.

**TABLE ES-4  
REGIONAL SOLID WASTE DIVERSION FACILITIES**

	<b>Missouri</b>	<b>Kansas</b>	<b>Total</b>
Collectors	19	11	30
Dealers/Processors/Packers	23	16	39
Composters	7	2	9
End Users	6	1	7
Reusers	15	2	17
Other	1	2	3
<b>Total</b>	<u>71</u>	<u>34</u>	<u>105</u>

The facilities accept a wide range of materials, including paper and paperboard, plastics, glass, metals, wood, textiles, yard waste, tires, appliances, and others.

### **Data Gaps**

Several instances of incomplete data on solid waste management facilities in the Region were identified:

- Since Kansas counties and cities are not members of the SWMD, details on their collection and recycling is incomplete.
- Sixteen hauling companies did not respond to the data gathering effort.
- Tonnage data for all Missouri facilities are not available through a state agency.
- No data were available for Kansas waste tire and transfer facilities.
- There is lack of detail on waste origin for Missouri facilities. For Kansas, detail is available on the state of origin, but not the community.
- Data on special waste disposed at landfills is not available in Missouri.
- Kansas and Missouri state agencies do not track diversion facilities, except for those requiring permits; therefore it is likely that all facilities were not identified.

## **Policy Recommendations**

- Proactive government policies, programs, and practices must be stimulated, especially for residential waste collection and curbside recycling. Local governments should contract with private haulers where individual services are dominant. MARC SWMD should provide assistance.
- MARC SWMD should support the location of transfer station(s) as landfill capacity reaches its limits, especially in Missouri. This suggests that landfill capacity will move out of the region in the next decade.
- MARC SWMD should support siting of environmentally sound disposal sites, including construction and demolition landfill sites, by the private sector in Missouri. This is not a popular subject to promote, but reality is that much of the solid waste generated will continue to be disposed in landfills, and without an alternative, more and more Missouri solid waste will go to Kansas landfills.
- MARC SWMD should establish and provide an on-going regional database as a service to the region. Assistance can be derived from Missouri DNR, Kansas DHE, Kansas counties in the region, and perhaps others.

## **Municipal Solid Waste Generation, Recovery, Source Reduction, and Disposal in the Region**

### ***Observations***

For this report, diversion is defined as source reduction, recycling, and composting. Reuse is a temporary diversion option. Generation equals diversion plus discards (e.g., disposal). Generation, recovery, and discards of municipal solid waste (MSW) and construction and demolition (C&D) debris in the Region in 2002 are shown in Table ES-5. The recovery rate for municipal solid waste in the region – including source reduction of yard wastes – was estimated at 28 percent in 2002.

Details on generation and recovery of individual items in the waste streams (e.g., newspapers) are included in the full report.

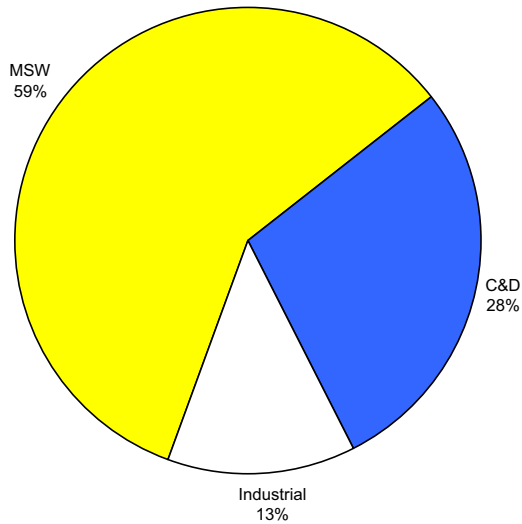
Generation of industrial process wastes in the Region was estimated to be 373, 240 tons in 2001, although data are incomplete. Figure ES-3 shows the relative importance of MSW, C&D debris, and industrial process wastes in the Region. Recovery of industrial wastes was not identified.

**TABLE ES-5  
GENERATION, RECOVERY, AND DISCARDS OF MSW AND C&D DEBRIS  
IN THE MARC REGION, 2002**

	tons/%	lb/person/day
Municipal Solid Waste		
Generation	1,701,430	5.35
Recovery*	468,070	1.47
Recovery percentage	28%	
Discards	1,233,360	3.88
Construction & Demolition Debris		
Generation	812,360	2.55
Recovery	380	0.00
Discards	811,980	2.55
<b>Totals</b>		
Generation	2,513,790	7.90
Recovery	468,450	1.47
Discards	2,045,340	6.43

\* Includes source reduction (yard waste). Excluding yard waste, recovery equals 19%.

**Figure ES-3. Generation of wastes in the region**



## Data Gaps

A number of data gaps were identified when collecting these data:

- Durable good (e.g., tires, appliances) were not identified as separate line items.
- Construction and demolition debris is not specified by source, e.g., residential or commercial.
- Available data on disposal of industrial wastes are not broken down by type of industry.
- Separate generation data for wastes from wastewater treatment plants, drinking water treatment plants, or electrical power generators were not available.

## Policy Recommendation

- MARC SWMD should establish and provide an on-going regional solid waste database as a service to the region. This database would make possible better analysis of the status of waste management in the region. Assistance can be derived from Missouri DNR, Kansas DHE, Kansas counties in the region, and perhaps others.

## Projections of Solid Waste Quantities in the Region

Regional municipal solid waste generation was projected to 2013 – a ten-year planning frame. The results are summarized in Table 6. Projections by product (e.g., plastic bottles) are shown in the detailed report.

**TABLE ES-6  
PROJECTED WASTE GENERATION IN THE MARC REGION, 2002 AND 2013**

	2002		2013	
	tons	lb/person/ day	tons	lb/person/ day
Municipal Solid Waste	1,701,430	5.35	2,036,350	5.74
Construction & Demolition Debris	812,360	2.55	948,010	2.67
Industrial Waste*	373,240	22.94	468,130	22.94
<b>Total</b>	<b>2,513,790</b>		<b>2,984,360</b>	

\* lb/employee/day

Generation of MSW and C&D debris are projected to increase both in tonnage and in pounds per person per day. Not enough data were available to project an increase in industrial waste in pounds per employee per day.

## Waste Management, Markets, Technologies, and Funding Strategies

### *Observations*

**Waste Management Trends.** Nationally, two important trends for *collection* of wastes were identified:

- Single-stream collection of recyclables. In this method, recyclables are generally collected commingled in a single container. There is a trend toward eliminating glass from this collection.
- Pay-as-You-Throw (PAYT). Also called unit-based pricing, this means that users pay based on the amount of waste picked up. There are a number of variations on this method.

For *diversion* (source reduction or recycling/composting), the following trends were identified and discussed:

- Increased collection and diversion of electronics. Programs for diverting electronics from disposal keeps potentially harmful components out of landfills.
- Decline in collection and diversion of glass. Collection of glass containers is being made more difficult by the trend toward single-stream collection, eliminating glass.
- Increased diversion of C&D debris from disposal. A number of programs for diverting the many materials in C&D debris were identified. Some of the significant components of C&D such as lumber and concrete are growing in recovery in other areas. There is a significant amount of regional diversion ahead of delivery of C&D materials to disposal sites, for example, bricks, doors, windows, and fixtures.

Detailed discussions of these trends, along with their pros and cons, are included in the full report.

**Market Trends.** Markets for the following recovered materials were analyzed:

- Glass. The traditional market for recovered glass containers has been manufacture of new containers. For this region, the drawback to this market has been long transportation distances for collected containers. Fiberglass manufacture was identified as an alternative.
- C&D Debris. Some emerging trends were identified for marketing the various components of C&D debris. Many are still in the experimental stage.

Detailed discussions of these trends, along with their pros and cons, are included in the full report.

***Processing Technologies.*** The following innovative and alternative processing technologies were identified and discussed:

- MSW composting
- Gasification
- Waste-to-ethanol
- Depolymerization

These technologies apply to the organic portions of the waste streams. Detailed descriptions are included in the full report and its appendices. Of these technologies, gasification is in the most advanced stages of development. The conclusion was that at this time, the risk to a public entity in pursuing a large-scale, innovative project is unreasonably high.

***Funding Strategies.*** A survey of other regional organizations was conducted to develop a list of funding strategies used by others. The most common funding mechanisms identified were:

- User fees from solid waste facilities owned by the organization
- Disposal fees on solid waste disposed in member cities/counties' solid waste facilities
- Generation (origination) fees on solid waste disposed in regional and nonregional facilities receiving solid waste that originated within the organizations' boundaries
- Member cities/counties association fees
- State grants

Detailed descriptions of the funding mechanisms as practiced by the identified organization are included in the full report.

## **Policy Recommendations**

### ***Waste Management Trends***

- MARC SWMD should encourage all cities and counties to be more involved in solid waste management, especially diversion, not only of residential waste, but of other sources as well.

### ***Market Trends***

- MARC SWMD should be more aggressive in encouraging the private sector to develop:

- Reuse and recycling of wood wastes (lumber, trees, etc.) and concrete
- Composting of organics such as food wastes
- Co-composting of wastewater treatment sludge (biosolids) and yard waste
- MARC SWMD should continue to encourage a limited feasibility study of recycling glass in the region, with focus on how to collect glass containers in the absence of sufficient curbside collection programs and the presence of single-stream collection that excludes glass.

### ***Emerging Technologies***

- MARC SWMD should monitor emerging technologies, but wait for the private sector to demonstrate commercial development and cost effectiveness

### ***Funding Strategies***

- The first policy approach to be explored should be the per capita fee in conjunction with an intergovernmental agreement approach.
- An intergovernmental agreement should be explored as a funding mechanism.
- MARC SWMD should explore origination fees only if other options are not feasible.

### **Broad Policy Recommendations**

Certain policy recommendations based on the data in this report are broad in scope. They are:

- Regionalization means bringing Kansas counties and cities into the MARC Solid Waste Management District. To do so, MARC SWMD will have to provide services to attract Kansas counties and cities. This is essential and will require involvement of the full MARC Board. The SWMD's role will be to take the first step to establish stronger working relationships with state, county, and city governments and agencies outside the MARC SWMD. Also, other stakeholders such as private sector solid waste management companies, local recyclers, and not-for-profit organizations will need to be involved. In this way, the services that will attract participation in the SWMD can be defined clearly. Then, true regionalization can be developed.
- MARC SWMD should explore the development of a regional Solid Waste Management Authority that provides bistate oversight of solid waste management. The study should include various models that are already in place, with the ultimate goal of more diversion and lesser dependence on disposal facilities.

- Partnerships in solid waste management education are vital, and MARC SWMD already has invested in a number of successful partnerships. The SWMD should continue to explore new and innovative educational possibilities.