

Sustainable Organic Materials Management Plan

EIERA

Missouri Sustainable Materials Management Plan

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List of Abbreviations

Abbreviation	Term/Phrase/Name
ACB	Air Curtain Burner
AFRI	Agriculture and Food Research Initiative
CFWR	Composting and Food Waste Reduction
COAM	Composting and Organics Association of Missouri
CSR	Missouri Code of State Regulations
DESE	Missouri Department of Elementary and Secondary Education
Districts	Solid Waste Management Districts
EIERA	Environmental Improvement & Energy Resources Authority
EPR	Extended Producer Responsibility
EQIP	Environmental Quality Incentives Program
EREF	Environmental Research & Education Fund
FY	Fiscal Year
MEEA	Missouri Environmental Education Association
MDA	Missouri Department of Agriculture
MoDNR	Missouri Department of Natural Resources
MMDP	Missouri Market Development Program
MSW	Municipal Solid Waste
NCR-SARE	North Central Region Sustainable Agriculture Research and Education
NIFA	National Institute of Food and Agriculture
NRCS	National Resources Conservation Service's
OMRI	Organic Materials Review Institute
OUAIP	Office of Urban Agriculture and Innovative Production
PAYT	Pay As You Throw
PCC	Post-Closure Care
PFAS	Per- and Polyfluoroalkyl Substances
PPP	Paper and Packaging Products
RCRA	Resource Conservation Recovery Act
RFS	Renewable Fuel Standard
RINs	Renewable Identification Numbers
RSMo.	Revised Statutes of Missouri



RVOs	Renewable Volume Obligations
SMM	Sustainable Materials Management
SMMP	Sustainable Materials Management Plan
SOMMP	Sustainable Organic Materials Management Plan
SRMDP	Sustainable Recycling Market Development Plan
STA	Seal of Testing Assurance
SWAB	Solid Waste Advisory Board
SWMP	Solid Waste Management Plan
U.S.	United States
U.S. EPA	United States Environmental Protection Agency
U.S.FDA	United States Food & Drug Administration
USDA	United States Department of Agriculture
SWCS	Statewide Waste Composition Study, 2017



Executive Summary

The Sustainable Organic Materials Management Plan (SOMMP), commissioned by the Missouri Environmental Improvement and Energy Resources Authority (EIERA), aims to develop a more sustainable and environmentally sound management plan for organic materials in Missouri. This SOMMP provides a comprehensive overview of the current organic waste system in the state, including a review of collection, processing and diversion infrastructure, regulations related to organic waste, and stakeholder feedback to identify barriers and opportunities for improvement. The SOMMP has the following five strategic goals.

- Increase diversion of organic materials.
- Promote the sustainable management of organics through education and outreach initiatives.
- Promote consistent statewide compliance to support the diversion of organics.
- Target funding mechanisms that encourage the diversion of organics.
- Develop and strengthen solid waste policies to promote diversion.

This SOMMP, while developed by the EIERA, is intended to provide guidance to the state's solid waste stakeholders and decision makers, including the Missouri Department of Natural Resources (MoDNR), the state's Solid Waste Advisory Board (SWAB), each of the 20 Solid Waste Management Districts (Districts), state and local government bodies, and other special interest groups and organizations with an interest in organic waste management. The SOMMP provides guidance intended to facilitate development of policies and resources that will meet the state's current and future needs.

There is no existing reportable organic waste diversion data, so the state's diversion rate is unknown. The 2017 Statewide Waste Composition Study (SWCS) found that approximately 26 percent of material within landfills consisted of organics, illustrating the opportunity to divert potential material from the landfill as generation and disposal rates continue to rise. Food waste likely represents a significant portion, by weight, of organic materials generated in the state.

The state has 20 Districts were established to support regional planning, encourage waste reduction, and provide communities with the resources and guidance needed to divert materials from landfills. For this evaluation, Districts were designated as Large Metro, Small Metro or Rural based on city population. These designations were used to compare characteristics of each District such as number of available services, facilities, and common challenges and opportunities. In general, Large Metro Districts support the greatest number of collection and processing services and infrastructure. Small Metro Districts have limited infrastructure for yard waste and food waste. The availability of diversion infrastructure dwindles in Rural Districts as population decreases. Education and outreach efforts are inconsistent across Districts, with each responsible for developing and implementing their own initiatives.

The SOMMP identifies goals, objectives, and strategies to address the challenges and identifies the priority, material type, contributing partners, and impacted District designations. Stakeholder input was gathered to influence the recommendations of the SOMMP. A summary of the objectives for each goal is as follows.



Goal Theme	SOMMP Objectives
Waste Reduction & Infrastructure	<ul style="list-style-type: none"> • Improve market demand for recycled organic products • Increase onsite processing for large generators of food waste • Increase the availability of source separated food waste collection • Expand food waste processing infrastructure • Expand yard waste collection services • Strengthen network of yard waste processing infrastructure • Bolster food recovery programs • Encourage grasscycling and backyard and community composting
Education & Outreach/Technical Guidance	<ul style="list-style-type: none"> • Increase awareness of sustainable organic materials management • Promote sustainable organic material management in schools and other public institutions • Provide technical guidance on best management practices for organic waste collection and processing
Compliance	<ul style="list-style-type: none"> • Increase recycled organic product quality
Incentives	<ul style="list-style-type: none"> • Boost competitive edge of food waste haulers and processors • Strategically allocate funding for organic material diversion
Policies	<ul style="list-style-type: none"> • Generate statewide policies for organic waste processing facilities • Standardize organic materials data tracking statewide

1.0 Introduction

The EIERA has a successful history of directly impacting the development of markets for recovered materials through the Missouri Market Development Program (MMDP). EIERA has identified a goal to address the programs and resources needed to develop more sustainable and environmentally sound management of materials in the State of Missouri. To support this effort, EIERA has developed this SOMMP in tandem with a Sustainable Materials Management Plan (SMMP) and a Sustainable Recycling Market Development Plan (SRMDP). This project received funding through the United States Environmental Protection Agency's (U.S. EPA) Solid Waste Infrastructure for Recycling Grant Program.

1.1 Overview

This SOMMP provides a comprehensive overview of the current organic waste system in the state. It includes a review of previously completed planning studies, regulations, policies and industry trends influencing organic waste, and existing funding opportunities for the sustainable management of this material. It also provides information on the generation, diversion, and composition of organic waste in the state. The SOMMP summarizes the collection and facility infrastructure that supports the state's organic waste management system as well as the barriers and opportunities that exist within this system.

1.2 Purpose

The purpose of the SOMMP is to provide direction for sustainable organic materials management with a focus on the full life cycle of comprehensive material management, including upstream natural resources and energy requirements. The SOMMP addresses market challenges by recommending actionable strategies designed to foster the development of markets for recovered organic materials across the state. Additionally, the SOMMP addresses the diverse challenges faced by both urban and rural communities, as logistics and cost pose greater difficulty in rural areas.

This SOMMP, while developed by the EIERA, is intended to provide guidance to each of the state's solid waste stakeholders and decision makers including the Missouri Department of Natural Resources (MoDNR), the state's SWAB, the 20 Districts, and state and local government bodies. The SOMMP provides guidance intended to facilitate development of policies and resources that will meet the state's current and future needs. Districts, municipalities, and counties are encouraged to align their plans with the included practices and consider the recommended action items.

1.3 Stakeholder Engagement

Stakeholder engagement was critical to the development of the SMMP. The following activities were conducted to obtain stakeholder input from MoDNR WMP staff, SWAB members, District leadership, and industry professionals.

1.3.1 District Interviews

Each District planner was interviewed to provide information on each of their solid waste systems between July and September of 2024. Interview questions included questions about the current solid waste system, recycling and organics processing infrastructure, barriers to diversion of recycling and organics, and potential strategies for market development.

1.3.2 Organic Processor Interviews

Processors of organic waste including compost facilities and organic material processing facilities were interviewed from September 2024 through April 2025. Interview questions included questions about the annual quantities processed, total processing capacity, as well as market barriers, and opportunities for market development.

1.3.3 Recycling Processing Facility Interviews

Interviews were conducted with processing facilities from the following industries: MRFs, scrap tire, solar panels, batteries, wind turbine blades, and plastics from November 2024 through March 2025. Questions were intended to identify barriers to increasing the use of recyclable materials as feedstock and means to eliminate those barriers and to provide insights into the need and type of processing and manufacturing facilities necessary to consume the existing and potential volumes of recyclable materials.

1.3.4 Conference Presentations

Throughout the development of the three plans, industry conferences were utilized to present information to stakeholders and gather feedback. Presentations were given at the following conferences and dates.

- Missouri Recycling Association Workshop: October 3, 2024
- Missouri Recycling Association Conference: May 22, 2025
- Missouri Waste Coalition Conference: July 15, 2025

1.3.5 Stakeholder Workshops

Three workshops were facilitated to present the findings of the current system review, present draft objectives and strategies, and gather feedback on support and prioritization for each. Workshops with the following audiences were conducted on the following dates.

- WMP staff, EI ERA and SWAB leadership: June 5, 2025
- WMP staff, SWAB members, SWMD leadership, and municipal and industry professionals: June 17, 2025
- WMP staff, SWAB members, SWMD leadership, and municipal and industry professionals: June 18, 2025

1.4 Goals

The SOMMP's desired outcomes are actionable strategies to keep organic materials out of landfills while complying with all applicable federal and state solid waste laws and regulations. The goals presented below are aligned with the state's stakeholders' visions and missions. There are five goals for the SOMMP categorized based on solid waste industry themes: waste reduction and infrastructure, education and outreach/technical guidance, compliance, incentives, and policies. The five SOMMP goals are presented in Table 1-1.

Table 1-1: SOMMP Goals

Theme	Goal
Waste Reduction & Infrastructure	Increase diversion of organics.
Education & Outreach / Technical Guidance	Promote the sustainable management of organics through education and outreach initiatives.
Compliance	Promote consistent statewide compliance to support the diversion of organics.
Incentives	Target funding mechanisms to encourage the diversion of organics.
Policies	Develop and strengthen solid waste policies to promote diversion of organics.

1.5 Key Terms

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

1.5.1 Materials

This section provides definitions for the primary categories of materials addressed in this SOMMP.

- **Agricultural Manure.** Consists of animal feces, urine, and soiled bedding, often including waste feed and other materials
- **Biosolids/Sludge.** Sludge is the solid or semi-solid residue separated from domestic wastewater during the treatment process and biosolids are treated sewage sludge that meets specific regulatory standards for pathogen reduction and pollutant concentrations.
- **Brush.** Green waste from the maintenance of yards, gardens, and parks such as branches, prunings, and shrubs
- **Crop Residue.** Plant material, such as stalks, stems, leaves, and roots, that remains after the main farm crop has been harvested
- **Food Waste.** Kitchen waste from food preparation, plate waste after food has been sold, includes vegetative food scraps, eggshells, meat, bones, dairy, coffee grounds, etc.
- **Edible food waste.** Edible food suitable for donation or other uses other than thrown away.
- **Organic Materials.** Biodegradable materials from living organisms like food scraps, yard trimmings, wood, manure, crop residue, and biosolids
- **Remainder/Composite Organics.** Organic material that cannot be put in any other type or subtype. This type includes items made mostly of organic materials but combined with other materials. Includes animal carcasses not resulting from food storage or preparation, animal wastes/feces, and certain types of kitty litter. Also includes manure and soiled bedding materials from domestic, farm, wild, or ranch animals. Other examples include cork, rubber products (inner tubes, rubber bands), candles, hand soap, hemp rope, hair, cigarette butts, used vacuum cleaner bags, popsicle sticks, chopsticks, and sawdust.
- **Source Separated.** Material that has been sorted by its generator
- **Wood Waste.** Woody plant material such as stumps, tree trunks, and pallets

- **Yard Waste.** Green waste from the maintenance of yards, gardens, and parks such as leaves, pine needles, and grass clippings

1.5.2 Sectors

This section provides definitions for the primary categories of sectors addressed in this SOMMP.

- **Agricultural.** Part of food production systems like crops, livestock, and poultry
- **Commercial.** Businesses including restaurants, landscapers, and grocery stores
- **Industrial.** Large scale commercial organizations like manufacturers/factories
- **Institutional.** Large scale non-commercial organizations like schools, universities, hospitals and prisons

1.5.3 District Designations

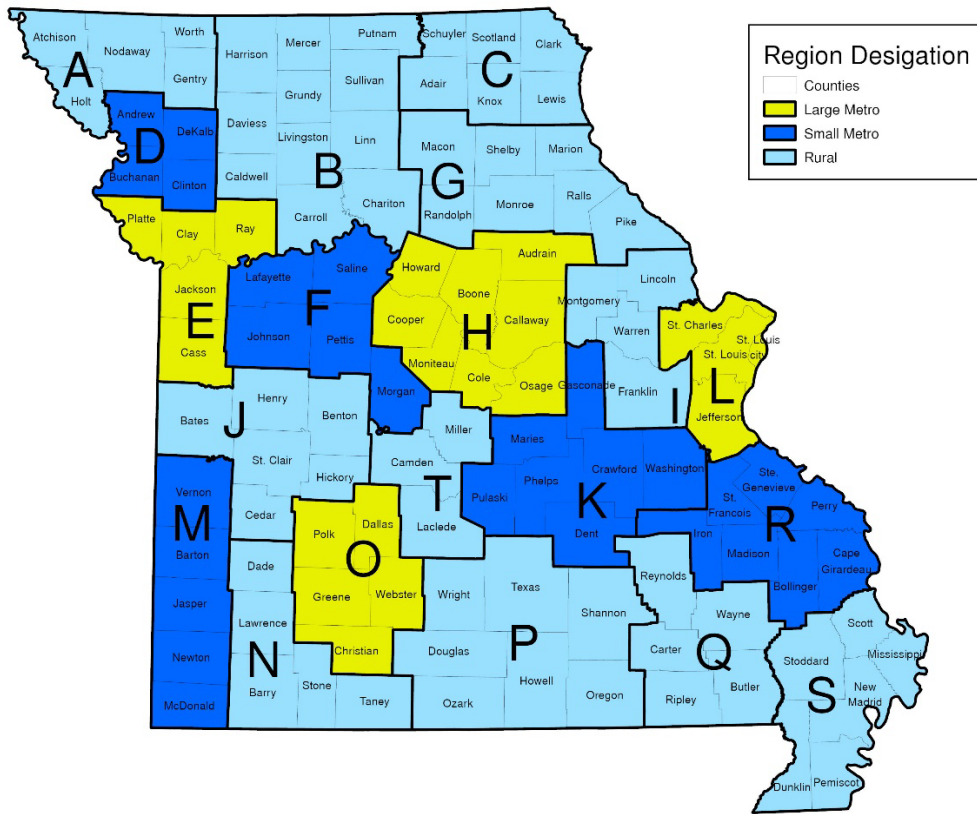
In 1992, 20 solid waste management districts were established pursuant to Section 260.305 RSMo. The Districts are responsible for developing regional solid waste management plans, promoting waste reduction and recycling, coordinating education and outreach, supporting infrastructure development, monitoring compliance and reporting, and facilitating collaboration. District plans must consider the statewide solid waste management plan per Section 260.325 RSMo. For this analysis, Districts were designated as Large Metro, Small Metro or Rural based on city population and defined using the categories and definitions in Table 1-2. These designations were used to compare characteristics of each District such as number of available services, facilities, and common challenges/opportunities. Analyzing the state through these three designations allows this SOMMP to address the unique needs of the diverse demographics across the state more effectively than a singular statewide approach.

Table 1-2: District Designation Definitions

District Designation	Abbr.	Definition
Large Metro	LM	Districts with at least one City that has a population greater than 100,000
Small Metro	SM	Districts with at least one City that has a population between 20,000 - 100,000
Rural	R	Districts without at least one City with a population greater than 20,000

District boundaries and their designation are presented in Figure 1-1.

Figure 1-1: Missouri Solid Waste Management District Designations



2.0 Policies, Regulations, Trends and Funding

This section provides a broad perspective of the historical and current state of the organic waste management environment in which EIERA is developing this SOMMP. Relevant policies, regulations, and industry trends are evaluated and incorporated throughout the development of this plan.

2.1 Federal Policies and Regulations

The federal government sets basic requirements to provide consistency among states and regulations to protect public health and the environment. The U.S. EPA oversees implementation of the Resource Conservation and Recovery Act (RCRA) of 1976 and all amendments, which provide the framework for the nation's hazardous and non-hazardous solid waste management. RCRA Subtitle D was the first federal legislation for non-hazardous waste disposal, establishing guidelines for landfill construction, management, and closure. Since the 1970s, RCRA has been amended three times. The law encourages composting and other alternative methods for the management of organic waste, but delegates most of this authority to state and local governments.

In the absence of federal legislation, national policies and programs are in place to guide lawmakers in implementing future legislation.

2.1.1 Wasted Food Scale

Revised by the U.S. EPA in October 2023 to prioritize actions to reduce wasted food starting with source reduction, followed by feeding people, feeding animals, industrial uses, composting, and finally landfilling or incineration as the last resort. It emphasizes preventing waste at the source and diverting surplus food to the most beneficial uses for people and the environment.

2.1.2 Food Loss and Waste Reduction Goal

The U.S. EPA set the food loss and waste reduction goal on September 16, 2015, to reduce wasted food by 50 percent by 2030. This effort, updated in September 2021, aims to tackle food insecurity and reduce landfill methane emissions by targeting 164 pounds of wasted food per person per year.¹

2.1.3 Federal Good Samaritan Act

The federal Bill Emerson Good Samaritan Food Donation Act of 1996 offers liability protection for food donations made in good faith to nonprofit organizations. This act protects donors from civil and criminal

Figure 2-1: U.S. EPA Waste Food Scale



US Environmental Protection Agency | Sustainable Management of Food Basics.¹

¹ U.S. Environmental Protection Agency. (May 2025). *Sustainable Management of Food Basics*. [Sustainable Management of Food | EPA](#).

liability, provided the food is apparently wholesome and the donation is not made with gross negligence or intentional misconduct.

2.2 State Policies and Regulations

The state's environmental laws and regulations regarding organic waste management include both the federal requirements adopted by the state and supplementary requirements that the state has chosen to add. State regulations are codified in the Missouri Code of State Regulations (CSR). MoDNR is charged with administering the state regulations found in Title 10 of the CSR. The SWAB advises MoDNR on various solid waste management issues. The state's solid waste policies and regulations that directly address organic waste are described below.

Food Donation Protections. Per Revised Statutes of Missouri (RSMo.) Section 537.115 offers limited liability protection for individuals and organizations that donate or distribute food in good faith. This protection applies to canned, perishable, or shelf-stable food that complies with state regulations and is fit for human consumption at the time of donation or distribution. Liability is only incurred in cases of negligence, recklessness, or intentional misconduct.

Animal Feed Statutes. Sections 266.410-460, RSMo., entitled Garbage as Hog Feed, established parameters around use of animal and vegetable refuse matter for hog feed.

Composting Facility Regulation. Missouri's Solid Waste Management Law and regulations require compost facilities to submit a management plan to MoDNR for an evaluation of regulatory requirements for stormwater and wastewater management. Most composting facilities are able to operate with an exemption from solid waste permitting obligations, but the acceptance of biosolids/sludge or Municipal Solid Waste (MSW) would likely trigger a permit requirement.

Yard Waste Landfill Ban. Per RSMo. Section 260.250, state law prohibits the landfilling of yard waste as of January 1, 1992, unless the landfill is a state-approved bioreactor that captures and uses landfill gas for energy.

2.3 Local Policies and Regulations

Districts and municipal governments in the state play a key role in implementing and managing organic waste programs within their communities. While federal and state jurisdictions set general guidelines, municipalities are responsible for local enforcement, program development, and public education. Their actions help implement federal and state policy while tailoring solutions to local needs.

Solid Waste Management Districts Per Section 260.325 RSMo, each District is required to submit an approved solid waste management plan to MoDNR. These plans support state waste diversion, future goals for the upcoming FY, and aid in the evaluation process for grants. Plans range in complexity, content, and format from very comprehensive to relatively minimal and are not updated on a consistent timeline. MoDNR's website includes a page dedicated to the 20 Districts.² District plans, if available, were reviewed in developing this SOMMP, and pertinent information is incorporated in the collection and processing evaluation in Section 4.0.

² Missouri Department of Natural Resources. (n.d.). *Solid Waste Management Districts*. [Solid Waste Management Districts | Missouri Department of Natural Resources](#)

Municipal Governments. Municipal governments in the state are granted autonomy in their strategies to manage organic waste. As a result, a consistent theme in policy and/or regulations cannot be identified for the state. Municipal regulations and policies regarding organic waste management vary widely across the state.

2.4 Relevant Planning Studies

Understanding prior solid waste planning projects is a critical step in developing this SOMMP. This section highlights historical planning exercises that have impacted the management of organic waste management in the state.

Missouri Solid Waste Management Plan, 2005.

Under Missouri Solid Waste Management Law, Section 260.225, the state is required to develop a Solid Waste Management Plan (SWMP) in cooperation with local governments, regional planning commissions, Districts, and appropriate state agencies. The state SWMP highlights major revisions made to Missouri Solid Waste Management Law in 1990, including establishing a goal to divert 40 percent of the waste stream from landfill disposal and directing MoDNR to create 20 Districts to foster regional collaboration. In addition to these overarching goals, the 2005 state SWMP established a set of objectives and strategies and worked with partners to develop specific SWMP goals including education for all, managing waste as a resource, safe disposal practices, and special solid waste issues.

The SWMP highlights key findings regarding the state's solid waste stream including the following.³

- The landfill diversion rate was estimated at 47 percent in 2004; however, the manner diversion was calculated may not accurately represent current diversion efforts.
- Diversion rates increased each year alongside generation rates.
- The number of communities with access to recycling services rose from 47 to 410 over a 13-year period (1989-2002).
- The number of communities with access to yard waste services increased from 112 to 333 over the same period.

Missouri Statewide Waste Composition Study, 2017.

The 2017 Statewide Waste Composition Study aimed to update Missouri's waste composition data set. The composition study included samples of waste disposed at 22 facilities and focused on waste generated in the state. Within the MSW category, organic waste included food waste, wood waste, disposable diapers and sanitary products, yard waste, and remainder/composite organics from both the commercial and residential sectors. Non-MSW organics included material from construction, demolition, industrial, special, and other waste, which was further categorized as leaves/grass/mixed yard waste, branches/limbs, and remainder/composite organics. Sampling methods included both manual sampling of MSW and visual surveys of non-MSW loads. Over 1,200 trucks were surveyed from a combination of 16 facilities surveying MSW and 15 facilities surveying non-MSW. The composition study is utilized throughout this SOMMP.⁴

³ Missouri Department of Natural Resources. (2021, December). *2005 Missouri Solid Waste Management Plan*. [Missouri Solid Waste Management Plan | Missouri Department of Natural Resources](#)

⁴ Missouri Department of Natural Resources. (2018, February). *Statewide waste composition study 2016–2017*. [Statewide Waste Composition Study, 2016-2017 | Missouri Department of Natural Resources](#)

2.5 Industry Trends

This section provides perspective on organic material management trends that may influence the development of this SOMMP and the industry moving forward.

2.5.1 Sustainable Materials Management

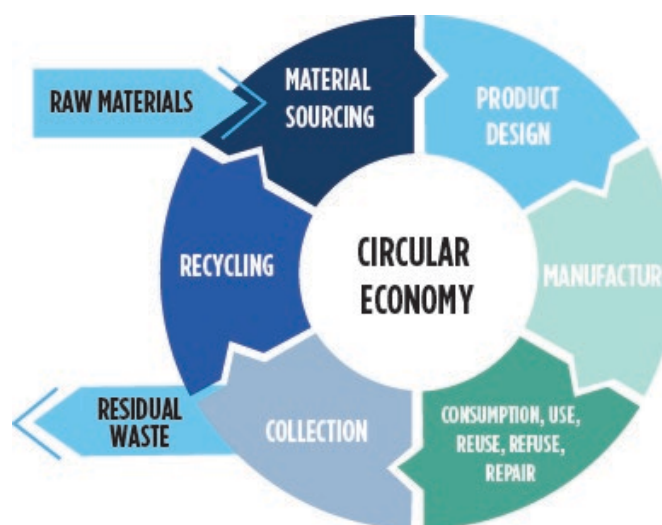
Sustainable Materials Management (SMM) is a systematic approach to using and reusing materials more productively over their entire lifecycles.⁵ SMM represents a change in how communities think about the use of natural resources and environmental protection, going beyond traditional thinking about waste 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 do the following.

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

2.5.2 Circular Economy

Like an SMM approach to planning for a community's future, a circular economy considers environmentally and economically sustainable decision making throughout a material's lifecycle.⁶ Contrary to the traditional linear concept of manufacture-use-dispose, a circular economy keeps resources in use for as long as possible and maximizes the life and value of materials. This process recovers and regenerates materials for other uses and allows the cycle to begin again, while minimizing material disposal. This approach reduces waste and pollution, conserves natural resources, and creates new economic opportunities.

Figure 2-2: Circular Economy



US Environmental Protection Agency | *What is a Circular Economy?*⁶

2.5.3 Zero Waste

Zero waste is a philosophy that encourages the redesign of resource life cycles so that all products are reused. A number of industry organizations, states, and cities have begun setting zero waste goals. While diversion rate is a common metric used to evaluate zero waste progress, 100 percent diversion is not the ultimate goal of zero waste principles. Rather, the focus is on continuous improvement and progressively working toward maximizing use of resources and minimizing adverse environmental impacts

⁵ U.S. Environmental Protection Agency. (2023). *Sustainable Materials Management Basics*. [Sustainable Materials Management Basics | US EPA](#)

⁶ U.S. Environmental Protection Agency. (2024, November). *What is a Circular Economy?* [What is a Circular Economy? | US EPA](#)

and material disposal. Commercial, institutional and industrial entities that divert waste from landfills can lower disposal fees and reduce the overall cost of materials through improved efficiency and waste minimization strategies. The potential scale of potential for recovered materials from commercial, institutional and industrial entities make this an especially notable trend.

2.5.4 Extended Producer Responsibility

Extended Producer Responsibility (EPR) is a relatively new but growing trend in the solid waste industry that aims to shift the responsibility and cost of waste management from local governments towards producers. EPR is a policy mechanism that seeks to decrease the total environmental impact of a product by making the manufacturer of the product responsible for the entire life-cycle of the product and especially for the take-back, recycling and final disposal. EPR may have the ability to significantly increase recycling rates, even in states that already perform relatively well. The EPR approach has been successful in the U.S. for certain challenging items such as electronics. It remains to be seen if EPR can be effective on broader material types like Paper and Packaging Products (PPP). Ten states have begun deliberations towards broad EPR programs, but it is too soon to understand how successful these programs might be.

There is only one specific statute implementing EPR in Missouri. The "Manufacturer Responsibility and Consumer Convenience Equipment Collection and Recovery Act," signed into law in 2008, requires computer manufacturers to implement recovery plans for collecting and recycling or reusing specific computer equipment at no additional cost to households or home businesses. The law assigned many duties to computer equipment manufacturers, retailers, and MoDNR. The Electronics Scrap Management rule, effective as of 2010 and revised in 2018, clarifies the computer equipment manufacturers, retailers and department's responsibilities for collecting and recycling or reusing specific computer equipment used by an individual primarily for personal or home business use. MoDNR is responsible for making sure computer manufacturers, retailers and recyclers manage the equipment according to state laws and regulations.⁷ The Missouri Product Stewardship Council is advocating for EPR laws in Missouri.

2.5.5 Food Waste Reduction

The modern effort to reduce food waste started in the early 2000s as long-term studies at the University of Arizona documented the staggering amounts of food Americans wasted (as much as 40 percent of the food we buy). Since then, efforts have spread globally to feed 8 billion people, keep methane-generating food out of landfills, and make better use of the food we do end up wasting by turning it into things like compost and energy. At a national level, the country has seen initiatives such as the National Strategy for Reducing Food Loss and Waste and Recycling Organics, jointly developed by the United States Department of Agriculture (USDA), U.S. EPA, and United States Food & Drug Administration (U.S. FDA). This strategy aims to reduce food loss and waste by 50 percent by 2030 and emphasizes increasing the recycling rate for all organic waste. Key aspects include preventing food loss, waste prevention, and supporting policies that incentivize organics recycling.⁸ Several states have enacted bans and other legislation to restrict or prevent food waste from ending up in landfills and some jurisdictions have tried to ramp up food rescue and food donation programs. Other states have tried to impose landfill restrictions to minimize the methane generated when food is placed in a landfill. The latest data shows that even at landfills with robust landfill gas collection

⁷ Missouri Department of Natural Resources. (n.d.). *Electronics Scrap Management Rule*. [Electronics Scrap Management Rule | Missouri Department of Natural Resources](#)

⁸ U.S. Environmental Protection Agency. (2024). *National Strategy for Reducing Food Loss and Waste and Recycling Organics*. [National Strategy for Reducing Food Loss and Waste and Recycling Organics | US EPA](#)

systems, a significant amount of methane is not captured and escapes into the atmosphere. U.S. EPA has revised its estimate of fugitive methane caused by food waste in landfills to 58 percent while reducing its estimate of overall landfill gas capture to 59 percent.⁹

2.5.6 Source Separation

MSW trends show a clear shift towards source-separation of organic waste, reflecting industry evolution and legislative momentum. Source separation is the practice of sorting solid waste at the point of generation to be diverted from the landfill waste stream. The increase in this practice is powered by municipal programs, regulatory frameworks, infrastructure funding, and technological innovation.

2.5.7 Pay As You Throw

Municipal Pay As You Throw (PAYT) programs encourage residents to divert and reduce the amount of waste they generate. These programs make households see and feel the cost of waste disposal services by requiring payment for trash services based on the amount of waste they throw away.¹⁰

2.5.8 Landfill Tipping Fees

As obtaining permits for new landfills becomes increasingly more challenging, landfill expansions are more prevalent than new landfills, and include both vertical and horizontal expansion. Landfill owners are seeking to extend facilities' useful lives by expanding the footprint, improving operations or by utilizing technologies such as enhanced leachate recirculation (a process where liquids are added into a landfill to accelerate degradation of the waste). Landfill owners and regulators are also looking beyond the prescriptive 30-year Post-Closure Care (PCC) period, recognizing that there may be additional long-term management costs and liabilities incurred by landfill facilities after the 30-year PCC period.

2.5.9 Waste to Energy Technologies

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. Municipal Solid Waste (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 the higher cost per ton relative to landfilling or other processing technologies.

2.5.10 Air Curtain Burners

An air curtain burner (ACB) is typically a portable piece of equipment that uses forced air to increase the efficiency of combustion within an open-topped container. This can result in a greater reduction in biomass and reportedly lower emissions. ACB's have been around for many years but have recently become more popular in areas with emissions limitations or for organic debris reduction in remote locations. By bringing the device to the source of biomass, trucking may be reduced. The main product of an ACB is ash, though a small amount of "biochar" may also be produced (see sidebar).

⁹ U.S. Environmental Protection Agency. (2025, March). *Quantifying Methane emissions from Landfilled Food Waste*. [Quantifying Methane Emissions from Landfilled Food Waste | US EPA](#)

¹⁰ U.S. Environmental Protection Agency. (n.d.). *Pay-as-you-throw: A fact sheet for solid waste decision-makers*. [PAYT and Climate Change Fact Sheet | Pay-As-You-Throw | US EPA](#)

ACB's are currently used in many situations, primarily in remote areas for biomass reduction (for fire prevention/fuel reduction). As a tool in solid waste management, they are relatively new and may not have sufficient throughput to achieve significant reductions compared to large stationary incineration. ACB's are appropriate for only a portion of the municipal waste stream, and we could not identify their use in any municipal organics programs.

2.5.11 Biochar

Biochar is a solid, carbon-rich material made from organic waste that has been partially burned in a low oxygen environment. Traditional biochar (attempting to mirror ancient agricultural practices) uses high temperatures in a low or no oxygen environment to reduce organic waste to a charcoal-like substance that can be used in a variety of agricultural and environmental applications. While biochar appears to be a promising material with many potential applications, it is not made or used at scale anywhere in the U.S. There are few municipal programs sending significant volumes of waste materials to biochar facilities, few of which exist in the U.S. (or elsewhere). Biochar production from MSW would likely be cost-prohibitive and would process only a portion of the organic waste stream. As an industry, biochar is in its infancy and lacks standards, research, and reference facilities.

Some composters report benefits of adding biochar products to compost both during the process and when added to soil, but these effects are not well-documented. The biochar industry is striving to create standardization in manufacturing and in understanding product testing, as feedstocks, manufacturing processes, and application rates can significantly affect results.

2.5.12 PFAS in the Solid Waste Industry

Per- and Polyfluoroalkyl Substances (PFAS) have emerged as a significant concern in the solid waste and wastewater industries due to their persistence in the environment and potential health risks. PFAS, often termed "forever chemicals," are widely used for their water and stain-resistant properties in various products such as cookware, clothing, and firefighting foams. Their ability to repel water has made them ubiquitous in consumer and industrial products. Legislation regarding PFAS is evolving rapidly. The U.S. EPA is actively working on PFAS regulation using existing authorities and has focused on data gathering, establishing drinking water standards, and establishing Comprehensive Environmental Response, Compensation, and Liability Act hazardous substance designation. In April 2025, the U.S. EPA announced it is engaged with Congress and industry to establish a clear liability framework that ensures the polluter pays and passive receivers are protected. Several states have enacted or are considering legislation to limit the use and disposal of PFAS-containing products, impacting how the solid waste industry handles these materials.

WHAT IS THE DIFFERENCE BETWEEN ASH AND BIOCHAR?

The biggest difference is in the process. Ash is created through combustion, burning in the presence of oxygen. Ash is mostly comprised of inorganic minerals as the organic matter is released during combustion. Biochar is produced through pyrolysis, in the absence of oxygen. Biochar will have a high percentage of carbon and is desirable (in soil amendment applications) for its high surface area. Both ash and biochar are used as soil amendments, but the effect and impact are different.

2.6 Funding Opportunities

Limited funding assistance is available through federal, state, and local programs to support the sustainable management of organic materials in Missouri.

2.6.1 Composting and Food Waste Reduction Cooperative Agreements

Since its inception in 2020, the Composting and Food Waste Reduction (CFWR) partnership between the USDA's Office of Urban Agriculture and Innovative Production (OUAIP) and the National Institute of Food and Agriculture (NIFA) has awarded over \$23.3 million to support the reduction and diversion of food waste and the production of compost. Municipal governments, tribal organizations, and school districts are eligible for CFWR funding.¹¹

2.6.2 Agriculture and Food Research Initiative

The Agriculture and Food Research Initiative (AFRI) is administered by the USDA through NIFA and funds research, education, and extension projects that address key agricultural challenges, including organic waste management, through topics like composting, food waste reduction, soil health, and sustainable nutrient cycling. Since its inception in 2009, over \$3.7 billion has been awarded to eligible recipients like colleges and universities, research institutions and organizations, federal agencies, national laboratories, private organizations or corporations, and individuals.¹²

2.6.3 North Central Region Sustainable Agriculture Research and Education

USDA's North Central Region Sustainable Agriculture Research and Education (NCR-SARE) program provides education and funding to advance sustainable agriculture in America's Midwest. Program goals include enhancing environmental quality, natural resource conservation, and the integration of on-farm and biological resources. Farmers and ranchers, researchers, educators, public and private institutions, and non-profit groups are all eligible recipients.¹³

2.6.4 Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) is the USDA National Resources Conservation Service's (NRCS) flagship conservation program with priorities like improving water and air quality, conserving ground and surface water, increasing soil health, and reducing soil erosion and sedimentation. This program supports practices like composting, biochar combustion, and anaerobic digestion but is only available to farmers, ranchers and forest landowners.¹⁴

¹¹ U.S. Department of Agriculture. (2024, April). Farmers and urban composting grants. [Urban Ag: Composting and Food Waste Reduction Cooperative Agreements](#)

¹² U.S. Department of Agriculture, National Institute of Food and Agriculture. (n.d.). *Agriculture and food research initiative*. [Agriculture and Food Research Initiative \(AFRI\) | NIFA](#)

¹³ North Central Sustainable Agriculture Research and Education. (n.d.). *About Us*. [About Us - SARE North Central](#)

¹⁴ U.S. Department of Agriculture National Resources Conservation Service. (2025, January). *Environmental Quality Incentives Program (EQIP) fact sheet*. [Fact Sheet | Environmental Quality Incentives Program | USDA NRCS](#)

2.6.5 Renewable Fuel Standard Program

The Renewable Fuel Standard (RFS) is a federal program administered by the U.S. EPA that requires transportation fuel sold in the U.S. to contain a minimum volume of renewable fuels, such as biogas generated from organic waste. The program sets annual Renewable Volume Obligations (RVOs) for refiners and importers and uses a credit system of Renewable Identification Numbers (RINs) to track compliance. RINs incentivize renewable fuel use by giving obligated parties a tradable asset to meet legal requirements cost-effectively.

2.6.6 Solid Waste Management Fund

The Solid Waste Management Fund, managed by MoDNR, is comprised of revenue from statewide solid waste tonnage fees. A majority of this revenue is allocated to the state's 20 Districts to support education, infrastructure, grants and programs that support the state's diversion goals. Annually, a portion of the Solid Waste Management Fund is also directly allocated to EI ERA, who provides financial assistance for projects recovering waste materials through the MMDP.

2.6.7 Missouri Food Pantry Tax Credit

Missouri provides a Food Pantry Tax Credit under Section 135.647 RSMo. This credit allows taxpayers to claim 50 percent of their donations (up to \$2,500 per year) of cash or food supplies to qualified local food pantries, homeless shelters, or soup kitchens.

2.6.8 Urban Agriculture Cost Share Grant Program

MDA sponsors this program to assist agriculturally affiliated individuals, businesses, and organizations in urban areas, as designated by the 2020 U.S. Census, to fund projects associated with urban agriculture. Funding of up to \$10,000 is available for construction costs, contracted work, food processing equipment and supplies, and storage facilities and equipment.

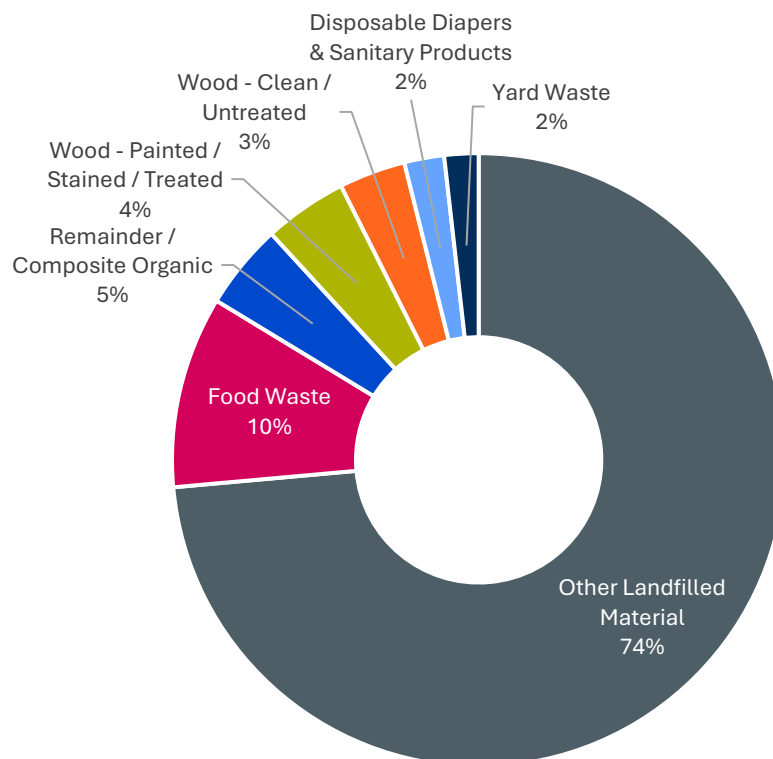
3.0 Composition, Generation, and Diversion

Planning for the state’s future organic waste management requires an understanding of the quantities of organic waste generated, disposed, and diverted within the state. This section includes a summary of the Statewide Waste Composition Study (SWCS) conducted in 2017, an analysis of the state’s food waste generation through U.S. EPA’s Excess Food Opportunity Mapping tool, and a summary of various organics diversion activities identified throughout the state.

3.1 Landfill Composition

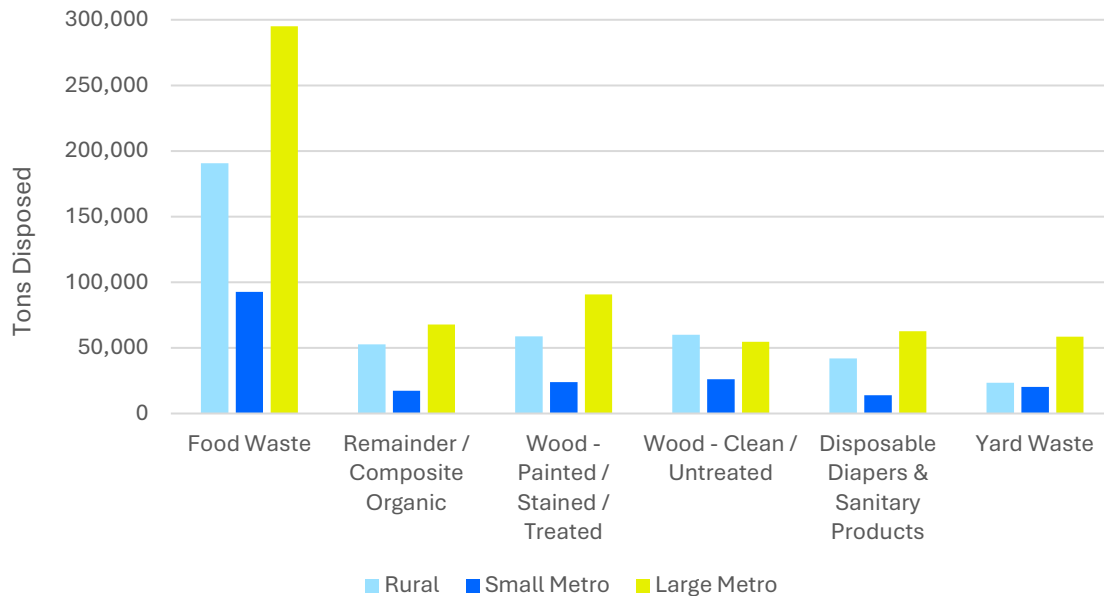
In 2017, a statewide waste composition study captured detailed material data from 22 out of the 82 landfill and transfer station facilities within the state. Figure 3-1 illustrates the state’s aggregated composition of landfilled organic waste.

Figure 3-1: Missouri Landfilled Organic Waste Composition, 2017



Approximately 26 percent of the state’s landfilled material is organic in nature. Food waste represents the largest fraction of this material. Yard waste makes up the smallest category of landfilled organic waste in the state, confirming that the yard waste landfill ban of 1992 has been an effective strategy to divert this material from our local facilities. Note that while the waste composition study characterized “disposable diapers and sanitary products” within the category of “organics” these materials are not considered for diversion within this SOMMP.

The 2017 SWCS also studied MSW composition by demographic regions of the state – rural, small metro, and large metro. Figure 3-2 demonstrates the demographic breakdown of organic MSW.

Figure 3-2: Comparison of Aggregate Organic MSW by Demographic Region

It should be noted that this data is captured by disposal facility and not by generator. Rural areas account for the greatest number of facilities at 43, large metros have 30 facilities, and small metros possess nine facilities. With the most disposal facilities in the state, rural areas may be disposing of organic MSW that was generated in small and large metros as well. Rural areas also lack substantial organic material diversion infrastructure (See Section 4.0), which is likely leading to disproportionately high disposal rates when compared to generator density.

3.2 Food Waste Generation

This section evaluates estimated excess food generated across various sectors in the state, using data from U.S. EPA's Excess Food Opportunity Mapping tool (Version 3.0, released in July of 2023) - an interactive map that supports nationwide efforts to divert surplus food from landfills. The tool provides data on potential waste generators and estimates of excess food quantities by generator type. Identifying the amount of excess food per generator type, the geographic distribution of generators relative to organics processing infrastructure, and the logistics of food waste collection and transportation enables a targeted, data-driven approach to prioritizing this SOMMP.

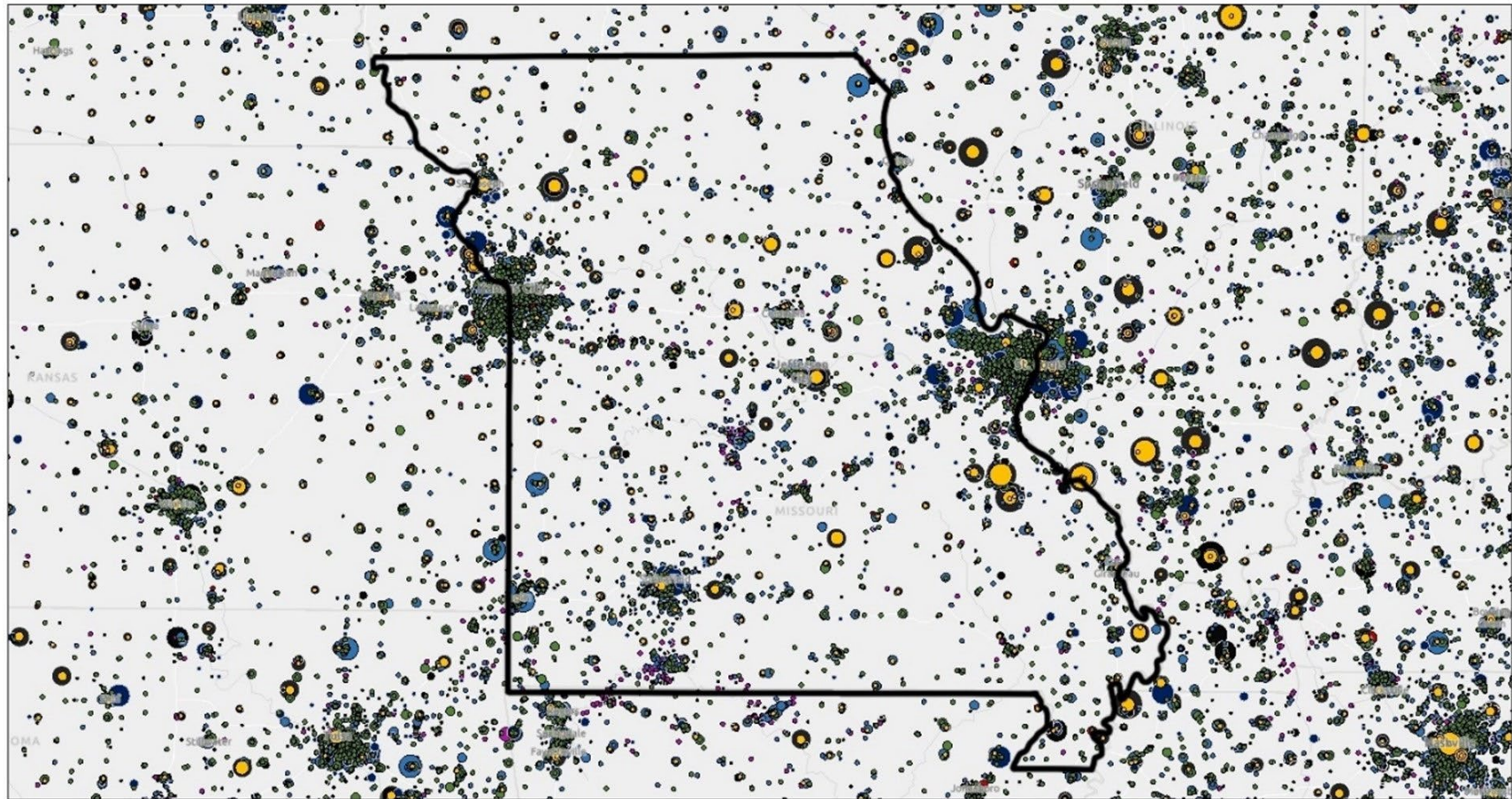
3.2.1 Excess Food Opportunities Map

U.S. EPA's Excess Food Opportunity Mapping tool displays the locations of potential excess food generators as circles of varying sizes, representing the ranges of food waste volume that may be generated. Each facility type layer is color-coded to indicate its category, and excess estimates are based on U.S. EPA formulas associated with facility categories. Facility categories include correctional facilities; educational institutions; food banks, food pantries and soup kitchens; hospitals and healthcare facilities; food manufacturing and processing facilities; wholesale and retail food sales; restaurants and more. This approach effectively illustrates the amount of potential excess food generated by each facility type; however, differences in the legend scales for each generator type make direct comparisons of waste output challenging. The tool does not account for existing diversion. Additionally, some overlapping circles can obscure specific generator

locations, making them harder to identify. Individual maps are shown in Appendix A for a better representation of each potential generator layer.

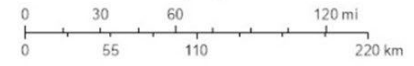
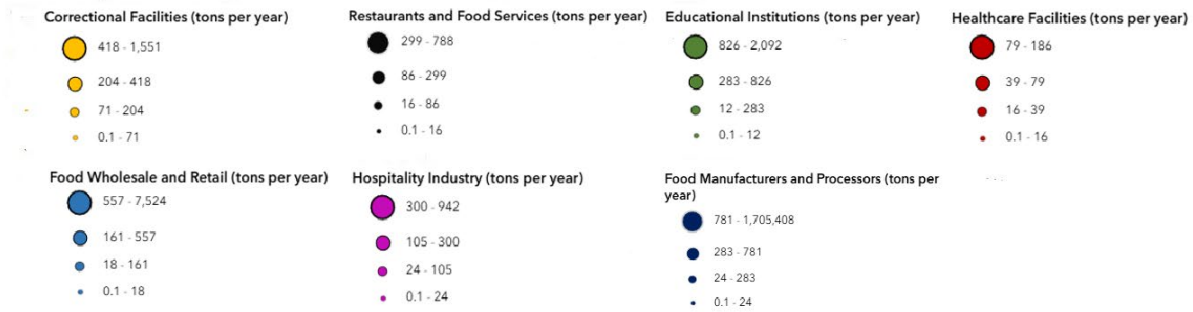
The tool is intended to be used to identify strategic opportunities for location-specific management of excess food. There are dense concentrations of potential generators in highly populated areas of the state, including Columbia, Jefferson City, Kansas City, Springfield, and St. Louis. Correctional facilities are the exception to this, as they are located outside of populated areas. Figure 3-3 provides visualization of estimated concentrations statewide.

Figure 3-3: The U. S. EPA Excess Food Opportunities Map



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Missouri DNR, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS



3.2.2 Food Waste Generation by Facility Type

Food waste generators evaluated in the SOMMP include the following.

- Food manufacturers and processors
- Restaurants and food services
- Food wholesale and retail entities
- Educational institutions
- Correctional facilities
- Healthcare facilities
- Hospitality industries

Table 3-1 summarizes the potential tonnage of statewide food waste generation per facility category based on U.S. EPA's Excess Food Opportunity Mapping tool data.

Table 3-1: Annual Potential Food Waste Generated - Top Facility Types

Generator Type	Estimate of Total Annual Tonnage ^a	Number of Facilities	Average Tons per Facility	Top Contributing Counties	Material Characteristics
Food Manufacturers and Processors	134,200	654	205	Franklin Greene Lincoln St. Louis	Consistent Homogenous
Restaurants and Food Services	108,941	6,459	17	Greene Jackson St. Charles St. Louis	Contaminated Inconsistent
Food Wholesale and Retail	64,472	2,879	22	Clay Jackson St. Charles St. Louis	Contaminated Unreliable
Educational Institutions	53,592	3,024	18	Cape Girardeau Greene Jackson St. Louis	Contaminated Reliable
Correctional Facilities	9,297	186	50	Cole DeKalb St. Francois St. Louis	Contaminated Remote
Healthcare Facilities	8,995	1,517	6	Boone Greene Jackson St. Louis	Contaminated Biohazardous
Hospitality Industry	5,946	1,184	5	Camden Jackson St. Louis Taney	Contaminated Inconsistent
Total	385,443	15,903	24		

^a The EPA tool provides both low and high annual tonnage estimates of excess food per generator type. This SOMMP calculates the average of these estimates to determine the average tons per facility based on generator type.

Food manufacturers and processors are expected to produce significantly more tons per facility than any other generator type, presenting the largest opportunity for impactful food waste diversion efforts. Similarly, restaurants and food services, educational institutions and food wholesale and retail establishments likely generate relatively high amounts per facility, further highlighting industry sectors for targeted waste reduction.

3.2.3 Food Waste Generation by Geography

The US EPA's Excess Food Opportunity Mapping tool identifies the top potential food waste-generating counties in the state as Boone, Clay, Greene, Jackson, Jefferson, St. Charles, and St. Louis, with approximately 66 percent of all potential food waste originating from four major metropolitan areas. See Table 3-2 for a breakdown of potential food waste generated in the state by geography.



Table 3-2: Potential Annual Food Waste Generated - Top Counties

County	Estimated Total Tons	Number of Facilities	Percentage of State Generated Food Waste
St. Louis (St. Louis)	120,100	10,207	31%
Greene (Springfield)	66,800	790	17%
Jackson (Kansas City)	27,400	1,776	7%
St. Charles (St. Louis Suburb)	17,200	765	4%
Clay (Kansas City Suburb)	9,400	482	2%
Boone (Columbia)	7,300	449	2%
Jefferson (St. Louis Suburb)	7,300	312	2%
Sum	255,500	14,781	65%

St. Louis County has the most facilities generating wasted food, followed by Jackson County and Greene County. St. Louis County generates the highest percentage of total potential food waste at 31 percent. Despite having the second highest number of generating facilities, Jackson County is the third highest potential generator of food waste at seven percent, while Greene County, with fewer facilities, is estimated to generate 17 percent. This could be due to the fact that the City of Springfield is home to several higher education institutions and one of the highest counts of restaurants per capita in the nation.

3.3 Organic Waste Diversion

The state currently has no means to quantitatively track organic waste diversion. However, this SOMMP has identified the following organic waste diversion activities across the state. Section 4.0 provides greater detail on part of the existing statewide system of organic waste diversion infrastructure.

3.3.1 Edible Food Rescue

The rescue and donation of edible food is one of the most preferred strategies to reduce the environmental impacts of wasted food, as ranked by the U.S. EPA (See Section 2.1.1). Food rescue programs in the state range from grassroots community efforts to large-scale food banks. Some larger statewide programs include the following.

- **Missouri Department of Conservation – Share the Harvest.** Allows recreational deer hunters to safely donate surplus venison via approved meat processors.
- **Food Recovery Network Chapters.** Leverages the existing infrastructure of colleges, universities, farms and food businesses to redirect surplus food to community members in need. Saint Louis University and Washington University in St. Louis currently both have active chapters.

Food rescue efforts are more heavily concentrated in the densely populated centers of the state; edible food collection and distribution, though still a priority, become more challenging in rural areas.

3.3.2 Animal Feeding

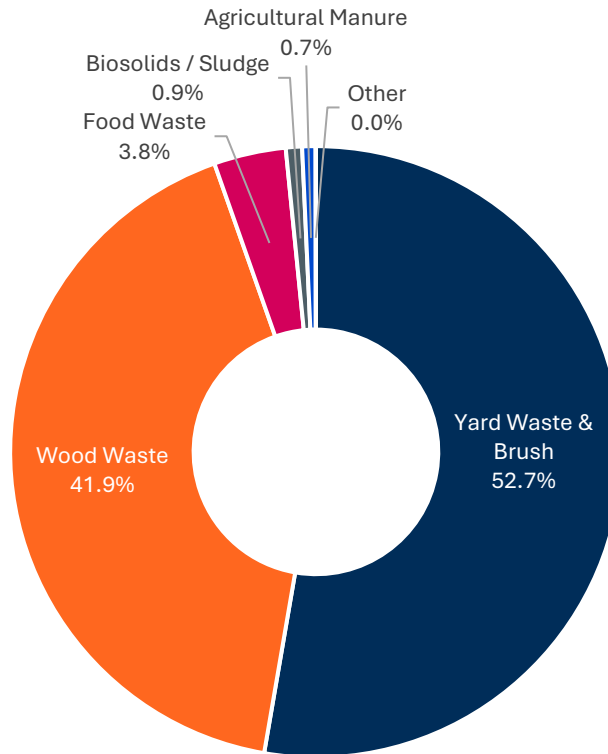
The agricultural community is no stranger to the importance of resource conservation – they are one of the earliest adopters of food waste diversion. To feed their animals, farmers and ranchers often partner with local manufacturers and businesses to obtain excess food and edible byproducts. Swine, cattle, and chicken operations are all prevalent across the state. Popular sources for this repurposed animal feed include

breweries, bakeries, grocery stores, food manufacturers, and restaurants. On a residential scale, feeding pets food scraps and leftovers that are past their prime for human consumption is a common practice in the state.

3.3.3 Composting

Composting in the state occurs at various scales ranging from backyard to on-farm to industrial. Though all scales of composting contribute to landfill diversion, industrial composters handle the largest volume of material - mostly yard waste, brush, and wood waste. To assist in developing this SOMMP, 22 industrial composters across the state were asked to provide their annual throughput for 2023. Of the 22 contacted, 17 composters volunteered their feedstock data.¹⁵ Figure 3-4 illustrates the aggregated composition of materials handled by these facilities. This data represents about 57 percent of the state’s known composting infrastructure by number of facilities.

Figure 3-4: Snapshot of Missouri Composting Composition, 2023



Because there is no standard system tracking organic waste data across the state, composters may record their feedstock quantities in various forms, if at all. Quantifying by volume (cubic yards) or weight (tons) are the most common methodology in the composting industry. To present material throughput in a uniform manner, this SOMMP has converted volumetric data based on standard assumed densities for individual material categories. Table 3-3 summarizes the estimated volume of material throughput for 17 composters.

¹⁵ Interviews with industrial composters was funded by EIERA, independent from the U.S. EPA grant.

Table 3-3: Missouri Voluntarily Reported Composting Throughput, 2023

Material	Tons
Yard Waste & Brush	499,368
Wood Waste	396,905
Food Waste	36,080
Biosolids/Sludge	8,128
Agricultural Manure	6,676
Other ^a	173
Total	947,330

^a Cardboard and dog food waste make up the Other category of organic materials

Factors that constrain increasing composting capacity include available space, available feedstock and processing equipment. Composters were able to rank additional feedstocks according to their level of interest, as shown in Figure 3-5.

Figure 3-5: Composting Feedstock Opportunity

Yard waste and brush, materials that have been banned from Missouri landfills for decades, represent both the largest fraction of existing compost feedstock and the most attractive additional feedstock for composters to pursue. Wood waste accounts for about 7 percent of landfilled material in the state, as shown in Figure 3-1, but still contributes to a significant portion of composting feedstock as well. Food waste makes up the largest fraction of landfilled organics – estimated at as much as 10 percent of all solid waste (see Figure 3-1) based on tonnage estimates from U.S. EPA’s Excess Food Opportunity Mapping tool data. This material significantly contributes to the environmental impact of the state’s landfills but many barriers to increasing diversion exist. Some of these challenges are captured in Figure 3-6. The composters ranked those challenges that influence their ability to accept more of these materials.

Figure 3-6: Composting Feedstock Barriers

The lack of collection infrastructure, especially for food waste, was reported as the greatest barrier to processing more organic waste at the state’s existing composting facilities. Lack of equipment capacity to handle the additional material was a frequently cited issue as well. Even if more feedstock was delivered to a site and the facility possessed the best collection of equipment in production, available space onsite could eventually limit a composter’s processing capacity. This restriction was provided as the third greatest barrier to diverting more material from landfills. However, the density and biological properties of food waste cause this organic material to occupy less space onsite than some of the other feedstocks identified as more attractive options by the processors. Challenges that are widespread across the solid waste industry like staffing and budget were also cited as barriers to this cause.

Overall, the state possesses a promising collection of composters who are successfully diverting organic waste from landfills, interested in creating an even larger impact on diversion, and excited about the potential for the state to address some of their greatest barriers to doing so.

3.3.4 Mulching

Mulching is a widespread diversion practice for brush and wood waste in the state. Most commonly, these materials are accumulated at public or private drop off sites where a third-party vendor is hired to periodically chip them as a site’s footprint nears storage capacity. Mulching is also typically a parallel practice at composting facilities where material not fed into compost can be sold or distributed as an alternate mulch product.

3.3.5 Anaerobic Digestion

Anaerobic digestion converts organic waste into biogas as a main product and digestate (both solid and liquid) as a byproduct with the potential for beneficial use. Anaerobic digestion exists in several formats across the state. Most prevalent are agriculture-based digesters that are handling mostly animal manure. Food waste is typically handled through co-digestion with other organic wastes, either at wastewater treatment plants or other industrial facilities. Table 3-4 summarizes the state’s agriculture-based digesters

and food waste co-digestion facilities. No anaerobic digestion facilities dedicated strictly to handling food waste have been identified in the state.

Table 3-4: State Anaerobic Digestion Infrastructure

Facility Name	Feedstock	City	District	Designation
Roeslein Alternative Energy - Homan Farm Digester	Agricultural Manure	King City	A	Rural
Hampton Feed Lot Digester	Agricultural Manure	Triplet	B	Rural
Roeslein Alternative Energy - Green Hills Farm Digester	Agricultural Manure	Unionville	B	Rural
Roeslein Alternative Energy - Locust Ridge Farm Digester	Agricultural Manure	Harris	B	Rural
Roeslein Alternative Energy - Ruckman Farm Digester	Agricultural Manure	Albany	B	Rural
Roeslein Alternative Energy - Somerset Farm Digester	Agricultural Manure	Mercer	B	Rural
Roeslein Alternative Energy - South Meadows Farm Digester	Agricultural Manure	Browning	B	Rural
Roeslein Alternative Energy - Valley View Farm Digester	Agricultural Manure	Green City	B	Rural
Roeslein Alternative Energy - Whitetail Farm Digester	Agricultural Manure	Unionville	B	Rural
Missouri University Campus Digester	Agricultural Manure	Columbia	H	Large Metro
St. Louis BTS	Food Waste	St. Louis	L	Large Metro
City of Springfield Southwest Wastewater Treatment Plant	Food Waste	Springfield	O	Large Metro

Ten agriculturally-based anaerobic digesters are operating in Missouri.¹⁶ The City of Springfield's Southwest Wastewater Treatment Plant is the only known facility in the state that is co-digesting food waste with wastewater solids. BTS Bioenergy has developed the state's only industrial anaerobic digestion facility co-digesting food waste in St. Louis.¹⁷

3.3.6 Biochar Combustion

A handful of biochar operations in the state are converting wood waste, yard waste, forestry residues, crop residue, and agricultural manure into a valuable soil amendment. Table 3-5 summarizes all identified biochar combustion facilities in the state.

¹⁶ U.S. Environmental Protection Agency. (n.d.). *Livestock anaerobic digester database*. [Livestock Anaerobic Digester Database | US EPA](#)

¹⁷ U.S. Environmental Protection Agency. (2023, April). *Anaerobic digestion facilities processing food waste in the United States (2019)*. [Anaerobic Digestion Facilities Processing Food Waste in the United States 2019](#).

Table 3-5: State Biochar Combustion Infrastructure

Facility Name	City	District	Designation
MO Biochar Project	Mobile On-Farm Systems		
Verde Resources	La Belle	C	Rural
Missouri Organic Recycling	Kansas City	D	Large Metro
Ozark Mountain Biochar	Springfield	O	Large Metro
Loganbill Enterprises	Latham	H	Large Metro
St. Louis Composting	Pacific	I	Rural

3.3.7 Land Application

Land application of biosolids/sludge is the most prevalent alternative to landfilling this material. Similarly, animal manure from agricultural practices is rarely disposed of in landfills because it is typically land-applied. Both types of material can provide valuable nutrients to soils. Land application of biosolids/sludge can pose a risk to human health and the environment if not conducted properly and is therefore regulated by the U.S. EPA and MoDNR pursuant to the Clean Water Act.

3.3.8 Burn Piles

Because yard waste is banned from Missouri landfills, it is commonly burned instead. Missouri law allows open burning of yard waste provided it originates and is burned on the same premise; however, open burning is regulated by city or county governments in certain jurisdictions of the state. Burning of yard waste ranges from residential land management, larger scale land development efforts, and even municipal or industrial collection for this purpose. Though yard waste burning is a valid means of landfill diversion, it may not always serve as the highest and best use of this organic material. It also results in air emissions that can adversely affect air quality.



4.0 Collection and Processing Infrastructure

Organics collection and processing infrastructure is essential for minimizing the environmental effects of landfills, prolonging their lifespans, and reclaiming valuable nutrients for more beneficial uses. Throughout the state, various programs and facilities are in place to support the diversion of organic waste. Gaining insight into these systems is key to identifying opportunities to enhance diversion rates and reinforce the broader organic materials management network. This section offers an overview of current yard and food waste infrastructure and evaluates how this system aligns with District designations.

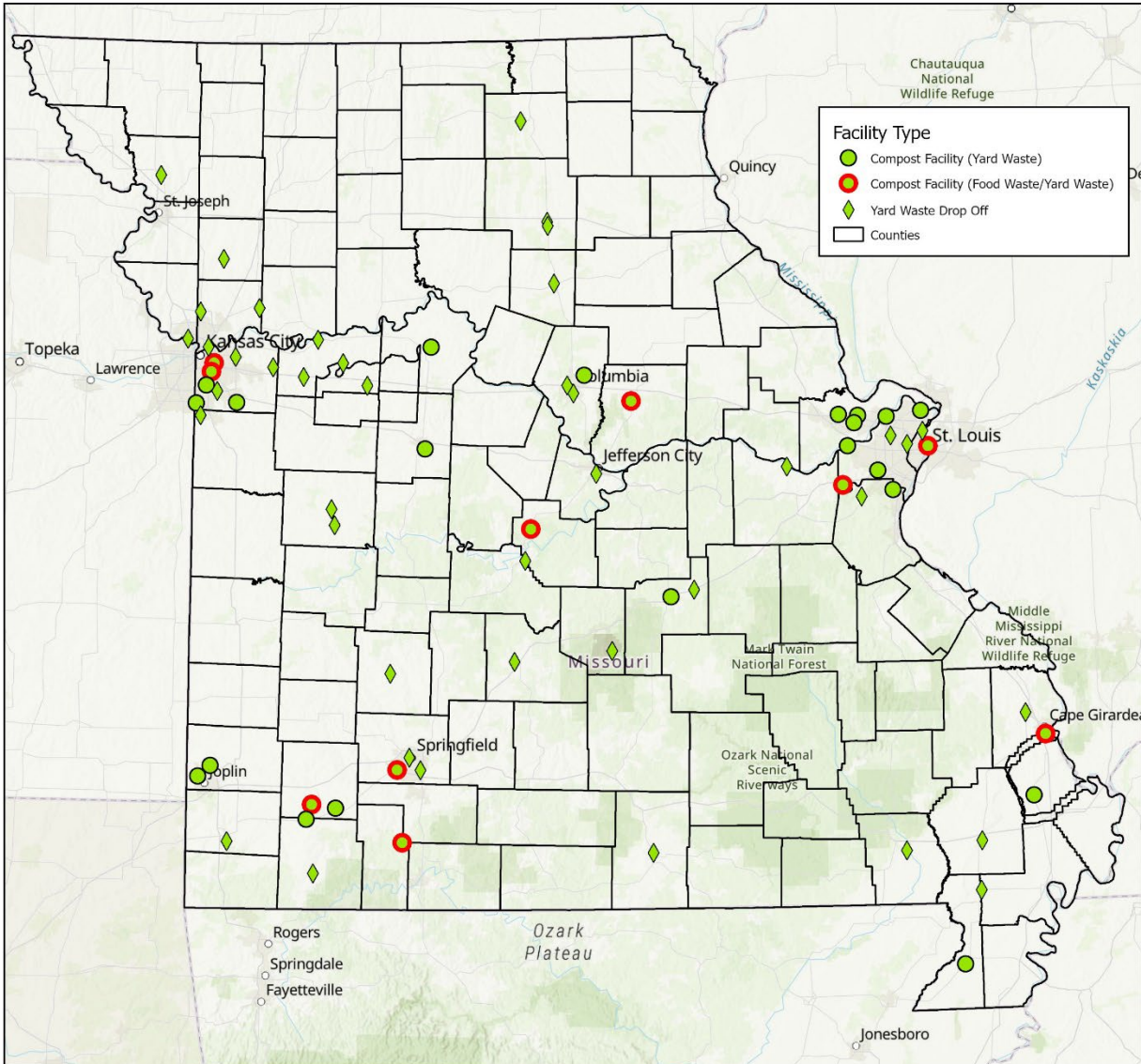
4.1 Existing Infrastructure

Organics collection and processing infrastructure is not required to receive a state permit, and no statewide database exists for these services. The following measures were taken to develop a comprehensive understanding of the state's organic waste collection and processing network.

- Available District planning documents were reviewed
- All 20 District planners were interviewed
- District input was desktop-verified
- 22 state organic waste haulers and processors were interviewed

A map depicting the location of each organic collection and processing location identified through this effort is presented in Figure 4-1.

Figure 4-1: Yard Waste Drop Off and Composting Infrastructure



Yard waste drop off locations range from a roll-off container to a lot designated for the collection of material. Little to no processing is occurring at these locations. In order to be identified as a compost facility, the location must be the site of active processing of organic material into a transformed finished product. Detailed information on compost facilities is presented in Appendix B.

The effectiveness of this infrastructure is analyzed in Section 4.2.

4.2 Organics System Analysis

The state's yard and food waste systems were evaluated based on the availability of the following services.

- **Collection.** Organic waste collection service requires generators to separate these materials from the landfill-bound waste stream themselves. The materials accepted in an organic waste collection

program are often determined by processor capabilities and preferences, though municipal governments possess some influence over these decisions. Collection services provide the highest level of convenience for generator participation at the expense of reduced hauling efficiency.

- **Drop Off.** Like collection, organic waste drop-off services rely on source-separation of the accepted materials. A drop off, however, additionally requires that individual generators self-haul their organic waste to designated collection locations. This service eases hauling efforts in exchange for a higher level of effort on the generators' part.
- **Processing.** Organic waste processing involves the active transformation of this material into a finished product. This can include operations like mulching, composting, anaerobic digestion, co-digestion at wastewater treatment plants, and biochar combustion.

The availability of services provided within each District was designated as abundant, common, limited, or none as defined in Table 4-1.

Table 4-1: Service Availability Designation Definitions

Designation	Definition
Abundant	Service availability is readily accessible or at least available within each District. Residents do not have a difficult time finding services to divert organic waste.
Common	Service availability is accessible in most areas of the District, but not all. Residents may have services available to them, but these services may be further away, available for limited hours, or other constraints contribute to availability.
Limited	Service availability is scarce across most, if not all areas of the District. Residents have a difficult time finding services to divert organic waste.
None	No service has been identified in the District.

These designations were applied to Districts as a whole, although the rural areas of most large metro and small metro Districts frequently are more aligned with designations of rural Districts.

4.2.1 Organics System Analysis – Yard Waste

The organics system was evaluated on the availability of yard waste collection services, drop off services, and processing infrastructure for each District designation and summarized in Table 4-2.

Table 4-2: Yard Waste System Evaluation

District Designation	Yard Waste Collection	Yard Waste Drop Off	Yard Waste Processing
Large Metro	Common	Abundant	Common
Small Metro	Limited	Limited	None
Rural	Limited	Limited	None

Large Metro Districts. Large metro Districts have variable access to yard waste diversion services. Drop offs are abundant and are typically sponsored by municipal governments in response to the yard waste landfill ban. Collection service is common in the highly populated cities of large metro Districts where generator density contributes to economic viability for haulers. Yard waste collection may be performed regularly or, more commonly, on a seasonal basis. This can be either a standard offering for all customers or optional service for an additional fee through municipally-provided service, an organized contract, or on the open market. Yard waste processors often rely on unaffiliated haulers for their feedstock and therefore

strategically site their facilities in areas of greater material generation. This is demonstrated where large metro Districts house 60 percent of the state’s yard waste composting infrastructure.

Small Metro Districts. Small metro Districts have limited access to yard waste diversion services. These Districts mainly suffer from a lack of processing infrastructure; their composting facilities only account for 20 percent of the state’s network. Collection service is limited without the facilities in place to handle this material. Yard waste drop offs, though also limited overall, are the most widely available service in these Districts. However, because processing facilities are rare, these sites commonly serve as long term storage or burn piles for the diverted material. Several municipalities within small metro Districts, like Sedalia, Joplin, and Rolla, are setting the standard for what beneficial yard waste diversion could look like in these regions.

Rural Districts. Rural Districts are the most limited in organized yard waste diversion opportunities. The lack of population density drastically reduces the feasibility of both collection and processing infrastructure. Like small metro Districts, rural Districts also contain about 20 percent of the state’s yard waste processing facilities. Most of these facilities, though located within rural Districts, are strategically sited near large metro Districts that can provide a larger stream of material for processing. Yard waste collection does occur near these processing facilities, but much of these Districts’ material is managed by individual generators or through uncommon drop off sites. Similar to small metro Districts, the lack of organized processing options commonly leads to passive stockpiling or burning of this material to abide by the landfill ban.

4.2.2 Organics System Analysis – Food Waste

The organics system was evaluated on the availability of food waste collection services, drop off services, and processing infrastructure for each District designation and summarized in Table 4-3.

Table 4-3: Food Waste System Evaluation

District Designation	Food Waste Collection	Food Waste Drop Off	Food Waste Processing
Large Metro	Limited	Limited	Limited
Small Metro	None	None	None
Rural	None	None	Limited

Large Metro Districts. Large metro Districts have limited access to services and infrastructure. The state’s food waste drop offs are limited to metropolitan cities. This service frequently materializes as designated containers at food-waste-adjacent businesses like grocery stores, restaurants, farmers markets, or at the processing facilities themselves. These are typically managed by smaller scale food scrap haulers, though Kansas City and Springfield are two municipal governments currently piloting this service. In addition to these pilot programs, food waste drop offs can be found in Columbia and St. Louis. Food waste collection is typically provided by the same vendors managing drop-off sites and is therefore offered in the same few cities. No municipal haulers are collecting source-separated food waste at this time. Food waste is heavy, highly putrescible, and incompatible with a long-haul system. Thus, all food waste processing facilities are located near areas of generator density and existing collection/drop off services. A total of 75 percent of the state’s food waste composting facilities are sited in large metro Districts.

Small Metro Districts. Small metro Districts have no access to organized food waste diversion services. Garbage disposals and landfills are likely the most common management solutions to this material, though some smaller scale diversion efforts like on-farm or backyard composting likely occur as well.

Rural Districts. Rural Districts have no known food waste collection or drop off services but interestingly contain 25 percent of the state’s food waste composting infrastructure. All these facilities are notably sited within hauling range of larger metropolitan areas outside of these Districts. Food waste in rural Districts is mostly managed through landfilling, feeding animals, and on-farm or backyard composting.

4.2.3 Organics System Challenges

A summary of the system challenges for large, small, and rural Districts is summarized in Table 4-4.

Table 4-4: Organic Waste System Challenges

System Challenges	LG	SM	R
Limited/no yard waste collection service availability		♦	♦
Limited/no food waste collection service availability	♦	♦	♦
Limited/no yard waste/food waste processing infrastructure		♦	♦
End product market demand/quality end product	♦	♦	♦
Food waste diversion struggles to compete with low landfill tipping fees	♦	♦	♦
No state regulations or data reporting requirements for organics facilities	♦	♦	♦
Lack of consistent and systematic education and outreach		♦	♦

Statewide. Diverting organic waste from disposal is only economically feasible if it is beneficially utilized instead. The success of organic waste processors is highly dependent on their ability to market their recycled products. Though feedback was mixed, a theme arose of processors experiencing a lack of market demand for their end products and District planners fielding questions surrounding the quality of these materials.

Another statewide challenge is the lack of organized information on organic generators and processors, making it difficult to plan for a statewide organic waste management approach. Additionally, this void of statewide information makes opportunities for processors less apparent.

Those processors with an interest in handling food waste face a formidable challenge in low landfill tipping fees. Landfill infrastructure offers economies of scale that generally makes landfilling the most cost effective option. Food waste recycling facilities handle a smaller, challenging waste stream and must charge higher fees to recover costs.

Food waste collection service is limited at best across the state – in most areas it is nonexistent. Collection is the first step in food waste diversion, but it is also the most difficult. It requires significant behavior change by generators, frequent servicing, and processing capacity within economical hauling distance.

Large Metro Districts. These Districts produce a majority of the state’s food waste and could make the largest impact on landfill diversion, but collection and processing capacity is still limited. When compared to overall populations, participation in food waste diversion is relatively low even in the largest cities. Several processors serving large metro Districts have expressed an interest in handling more of this material but struggle to bridge the collection gap between themselves and generators. Though they do have access to the most facilities, even large metro Districts would likely fall short of necessary food waste processing capacity should these regions experience growth in collection service participation.

Small Metro Districts. Opportunities for organized food waste diversion in small metro Districts are almost nonexistent – even yard waste service is rare. These Districts have attracted a disproportionately small fraction of the state’s yard waste processing infrastructure, which in turn has discouraged the development of correlated collection services. Without alternative options to manage this material, many communities turn to methods that keep yard waste out of landfills but do not represent its highest and best use.

Small metro Districts have also reported a challenge in educating constituents about sustainable organic waste management. Organic resources are less widely understood by the public than other recyclables. This lack of awareness paired with the behavior change that an organics program requires is a key obstacle to unlocking the potential of organic material recovery.

Rural Districts. The least organics diversion services are offered to rural Districts where a lack of density would make infrastructure costly and impractical. Instead, generators are largely left to manage organic waste themselves. With education and outreach also substantially lacking, this leads to processes that likely do not represent the highest and best use of these organic materials.

Rural Districts especially acknowledged a challenge with food rescue and donation efforts, a management strategy deemed a higher priority to recycling efforts by the U.S. EPA’s Wasted Food Scale (See Section 2.1.1). The lack of population density that inhibits organics diversion services poses similar issues for this cause.

Though the state faces multiple challenges with its organic waste recycling system, the state is home to many committed municipalities, businesses, and individuals who demonstrate leadership in the sustainable management of this valuable material. Each system challenge poses an opportunity for the state to set the Midwestern standard of organic material stewardship.

5.0 Goals, Objectives and Strategies

Five overarching themes were developed to categorize SOMMP goals, objectives, and strategies. Themes were identified based on stakeholder feedback, current system analyses, and associated challenges. These themes are identified below.

- Waste Reduction and Infrastructure
- Education and Outreach/Technical Guidance
- Compliance
- Incentives
- Policies

Each theme has a goal and set of objectives that work to fulfill SOMMP goals and priorities. Objectives are followed by strategies which include detailed breakdowns of priority, targeted material types, potential contributing partners, designated District types, and key action items. These variables are meant to guide the purpose of the SOMMP and provide a manageable operations plan to achieve SOMMP goals.

Goals, objectives, and strategies were evaluated through stakeholder engagement activities as described in Section 1.4 and ultimately developed and recommended by the EI ERA and MoDNR. All strategies are assigned a priority ranked as high, medium, or low as, defined in Table 5-1.

Table 5-1: Strategy Ranking Criteria

Ranking	Estimated Timeframe for Implementation
High	1-3 Years
Medium	3-5 Years
Low	5-10 Years

5.1 Waste Reduction and Infrastructure

Reducing the amount of waste generated and strengthening infrastructure to manage it are key components for improving the sustainability and efficiency of the organic waste system in the state. Waste reduction efforts aim to minimize material consumption, minimize wasted food, and divert organic materials from disposal. At the same time, a network of collection and processing facilities is essential to support these efforts and adequately manage organic waste.

The following goal and corresponding objectives and strategies aim to support organic waste reduction and infrastructure and are explained in detail below.

GOAL 1 *Increase diversion of organics.*

Objective 1

Improve market demand for recycled organic products

Strategy 1

Develop policy encouraging recycled organic product use on compatible projects

Priority	Material Types	Contributing Partners	District Designations
High	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> EIERA Missouri Department of Transportation MoDNR Local Governments 	<ul style="list-style-type: none"> Statewide

Key Action Items

- Publish model specifications for recycled compost/mulch use (product quality standards, application rates, applicable projects, etc.) for slope stabilization, erosion control and stormwater management using U.S. EPA example specifications¹⁸ as a guide
- Coordinate with MoDOT and local transportation departments to promote use of compost in slope stabilization, erosion control and stormwater management projects
- Evaluate developing a preferential procurement policy for recycled compost/mulch use on government projects (see NRDC Model Procurement Policy¹⁹ for example)

Strategy 2

Promote product-marketability investments

Priority	Material Types	Contributing Partners	District Designations
Low	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> EIERA Districts 	<ul style="list-style-type: none"> Statewide

¹⁸ U.S. Environmental Protection Agency. (2024). *Comprehensive Procurement Guidelines for Landscaping Products*. [Comprehensive Procurement Guidelines for Landscaping Products | US EPA](#)

¹⁹ Natural Resources Defense Council. (2021). *Model Compost Procurement Policy: With and Without Commentaries*. [Model Compost Procurement Policy | NRDC](#)

Key Action Items

- Develop product-marketability best practices (screening, contamination removal, colorization and bagging materials, etc.)

Objective 2*Increase onsite processing for large generators of food waste***Strategy 1***Support onsite food waste processing investments*

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
High	<ul style="list-style-type: none"> • Food Waste 	<ul style="list-style-type: none"> • EIERA • Districts 	<ul style="list-style-type: none"> • Statewide

Key Action Items

- Define best practices for adding onsite food waste processing
- Support onsite processing equipment siting (smaller scale systems like in-vessel composting, food waste digesters, etc.)

Objective 3*Increase the availability of source separated food waste collection***Strategy 1***Identify and connect the largest commercial generators to food waste haulers and processing facilities*

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
High	<ul style="list-style-type: none"> • Food Waste 	<ul style="list-style-type: none"> • EIERA • Districts • Local Governments 	<ul style="list-style-type: none"> • Statewide

Key Action Items

- Identify organics processing facilities with an interest and capacity to manage additional food waste
- Identify commercial and institutional generators of significant food waste with a voluntary interest in source separation and diversion
- Identify haulers with interest, capacity, and ability to transport additional food waste to organic processing facilities

Strategy 2*Expand voluntary food waste drop sites*

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
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Medium	<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> EIERA Districts Local Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Identify organics processing facilities with an interest and capacity to manage additional food waste Identify haulers with interest, capacity, and ability to transport additional food waste to organic processing facilities Identify potential location(s) of food waste drop site(s) to foster greatest possible voluntary participation and allow for efficient hauling to processing facilities 			

Strategy 3			
<i>Support food waste separation and collection investments</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> EIERA Districts Local Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Support food waste separation and collection investments (educational materials, residential & commercial food scrap starter kits, drop site construction, collection equipment, etc.) 			

Objective 4

Expand food waste processing infrastructure

Strategy 1			
<i>Support efforts of generators to divert food waste to organics processing facilities</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> EIERA Districts Local Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Develop best practices for food waste generators to divert this material to organics recycling facilities (industrial, institutional, commercial, residential, etc.) Provide outreach and training to assist food waste generators with diversion plans 			

Strategy 2			
<i>Incentivize food waste processing investments</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
High	<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> EIERA Districts Local Governments 	<ul style="list-style-type: none"> Statewide



Key Action Items

- Support increased capacity of existing food waste processors (grinders/shredders, mixing, handling, windrow turners, aerated static pile systems, etc.), upgrading of yard waste composters to accommodate food waste (contamination management, food waste receiving, monitoring and testing, processing equipment, etc.), and construction of new food waste processing facilities (composting, anaerobic digestion, etc.) with incentives

Objective 5

Expand yard waste collection services

Strategy 1

Increase special yard waste recycling events

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Low	<ul style="list-style-type: none"> • Yard Waste 	<ul style="list-style-type: none"> • EIERA • Districts • Local Governments 	<ul style="list-style-type: none"> • Statewide

Key Action Items

- Encourage communities with yard waste processing ability but little collection service to host special yard waste recycling events (Christmas trees, pumpkins, etc.)
- Provide statewide access to how-to guides or subject matter experts for communities to reference when hosting these events
- Hosts can encourage future participation by publishing the final impact after each event

Strategy 2

Expand voluntary yard waste drop sites

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> • Yard Waste 	<ul style="list-style-type: none"> • Districts • Local Governments 	<ul style="list-style-type: none"> • Small Metro • Rural

Key Action Items

- Identify organics processing facilities with an interest and capacity to manage additional yard waste
- Identify haulers with interest, capacity, and ability to transport additional yard waste to organic processing facilities
- Identify potential location(s) of yard waste drop site(s) to foster greatest possible voluntary participation and allow for efficient hauling to processing facilities

Strategy 3

Support yard waste separation and collection investments

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
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High	<ul style="list-style-type: none"> Yard Waste 	<ul style="list-style-type: none"> Districts Local Governments 	<ul style="list-style-type: none"> Small Metro Rural
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Support construction of new and/or expanded yard waste drop sites (educational materials, containers, access control, site development, etc.) and residential yard waste collection (educational materials, containers, haul trucks, etc.) with incentives 			

Objective 6
Strengthen network of yard waste processing infrastructure

Strategy 1			
<i>Support yard waste processing investments</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> Yard Waste 	<ul style="list-style-type: none"> EIERA Districts Local Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Support the construction of new yard waste processing facilities with incentives Support increased capacity of existing food waste processors (grinders/shredders, mixing, handling, windrow turners, aerated static pile systems, etc.) and the construction of new yard waste processing facilities (composting, biochar, etc.) with incentives 			

Objective 7
Bolster food recovery programs

Strategy 1			
<i>Connect significant food waste generators, food rescue organizations, and waste management programs</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> EIERA Districts Local Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Identify local food rescue organizations Facilitate collaboration between significant food waste generators, food rescue organizations, and waste management programs 			



Strategy 2			
<i>Support edible food recovery investments</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> Districts Municipal Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Support edible food recovery investments (collection and storage equipment) 			

Objective 8

Encourage grasscycling and backyard and community composting

Strategy 1			
<i>Consider a local burn ban for yard waste with exception for emergency events</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Low	<ul style="list-style-type: none"> Yard Waste 	<ul style="list-style-type: none"> Local Governments 	<ul style="list-style-type: none"> Rural
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Develop messaging related to public safety and adverse air quality impacts from yard waste burning Promote seasonal yard waste collection Draft and enact local ordinance banning burning of yard waste with exception for emergency events 			

Strategy 2			
<i>Support backyard and community composting programs</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> Districts Local Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Gain perspective from existing programs like the City of Springfield's Dish to Dirt program²⁰ Support backyard and community composting programs (educational materials, training programs, countertop devices, starter kits, etc.) 			

²⁰ City of Springfield Environmental Services. *Dish to Dirt home composting program*. [Dish to Dirt home composting program | City of Springfield Environmental Services](#)

5.2 Education and Outreach / Technical Guidance

Effective organic waste management systems rely not only upon infrastructure but also on informed communities and local programs. Education and outreach initiatives increase public understanding of proper disposal, waste reduction, and recycling while technical guidance provides local governments, businesses, processors and Districts with the tools and information needed to implement effective programs.

The following goal and corresponding objectives and strategies aim to support education and outreach/technical guidance and are explained in detail below.

GOAL 2

Promote the sustainable management of organics through education and outreach initiatives.

Objective 1

Increase awareness of sustainable organic materials management

Strategy 1

Leverage federal, state, and local resources for education and outreach efforts

Priority	Material Types	Contributing Partners	District Designations
High	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> Districts Local Governments EIERA 	<ul style="list-style-type: none"> Statewide

Key Action Items

- Identify existing resources (like U.S. EPA’s Social Marketing Toolkit²¹)
- Distribute existing resources to applicable stakeholders
- Select compatible funding opportunities

Objective 2

Promote sustainable organic material management in schools and other public institutions

Strategy 1

Support and promote existing tools and partner programs in schools and other public institutions

Priority	Material Types	Contributing Partners	District Designations
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²¹ U.S. Environmental Protection Agency. (2025). *Preventing Wasted Food in Your Community: A Social Marketing Toolkit*. [Preventing Wasted Food in Your Community: A Social Marketing Toolkit | U.S. EPA](#)



Low	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> MoDNR Schools Missouri Department of Elementary and Secondary Education Missouri Environmental Education Association (MEEA) Green Ribbon Schools Districts Local Governments 	<ul style="list-style-type: none"> Statewide
Key Action Items			
<ul style="list-style-type: none"> Explore the resources already available through MEEA, Green Ribbon Schools Group, Missouri Interagency Recycling Committee and promote their use Align content with state educational standards Provide guidance for schools and other institutions wishing to pilot small scale organic material diversion onsite, leveraging existing resources (such as Cornell Composting in Schools Resources²²) 			

Objective 3
Provide technical guidance on best management practices for organic waste collection and processing

Strategy 1			
<i>Leverage federal, state, and local resources for technical excellence</i>			
Priority	Material Types	Contributing Partners	District Designations
Medium	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> Districts EIERA Local Governments 	<ul style="list-style-type: none"> Statewide
Key Action Items			
<ul style="list-style-type: none"> Identify existing resources (national professional organizations, research and development institutions, lobbying groups, etc.) Collaborate with university extensions, professional organizations, successful haulers/facilities/programs and local garden groups to promote use of their resources 			

²² Cornell Waste Management Institute. (1996). *Composting in Schools*. [Composting in Schools | Cornell Waste Management Institute](#)



5.3 Compliance

Compliance plays a critical role in maintaining the integrity, safety, and environmental performance of the organic waste management system. Through permitting, inspections, enforcement, and reporting requirements, regulatory agencies help ensure that facilities and haulers operate in accordance with state laws and environmental standards.

The following goal and corresponding objectives and strategies aim to support compliance and are explained in detail below.

GOAL 3	<i>Promote consistent statewide compliance to support the diversion of organics.</i>
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Objective 1
<i>Increase recycled organic product quality</i>

Strategy 1			
<i>Establish a statewide professional organization for organics processors</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
High	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> Districts Composting and Organics Association of Missouri (COAM) 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Support a statewide professional organization for organic material processors Invite participants to join statewide organization through processor data gathered in this SOMMP 			

Strategy 2			
<i>Encourage the use of reputable organic product quality certification programs</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Low	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> EIERA Districts Local Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Promote compost certification through the Seal of Testing Assurance (STA) Promote organic composting certification through Organic Materials Review Institute (OMRI) 			



Strategy 3			
<i>Fund quality-focused investments</i>			
<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Low	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> EIERA Districts Municipal Governments 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Support quality-focused investments (research & development, screening, contamination removal, monitoring and testing equipment, etc.) 			

5.4 Incentives

Incentives are a valuable tool for encouraging innovation, expanding infrastructure, and supporting participation in sustainable organic waste practices. By offering support such as grants, rebates, or market development assistance, state and local agencies can help reduce barriers to entry, stimulate private-sector investment, and advance the adoption of organic waste reduction, rescue, and diversion efforts. When strategically designed, incentive programs can accelerate progress toward long-term waste management goals and foster collaboration across sectors.

The following goal and corresponding objectives and strategies aim to support incentives and are explained in detail below.

GOAL 4

Target funding mechanisms to encourage the diversion of organics.

Objective 1

Boost competitive edge of food waste haulers and processors

Strategy 1

Encourage food waste source separation at municipal and/or institutional facilities

Priority	Material Types	Contributing Partners	District Designations
Low	<ul style="list-style-type: none"> Food Waste 	<ul style="list-style-type: none"> EIERA Districts Local Governments Correctional Facilities School Districts 	<ul style="list-style-type: none"> Statewide

Key Action Items

- Refer to USCC Organics Diversion Policy map²³ for existing food waste policy examples
- Develop best practices for institutional source separation and composting

Objective 2

Strategically allocate funding for organic material diversion

Strategy 1

Allocate District funding to address organic waste reduction and recycling based on specific area challenges

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
<i>Low</i>	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> Districts 	<ul style="list-style-type: none"> Statewide

Key Action Items

- Identify whether organic waste reduction, especially food and yard waste, is a key goal for the District
- Support education and outreach efforts surrounding this issue
- Prioritize funding investments according to District goals and U.S. EPA's food recovery hierarchy¹

Strategy 2

Allocate funding to address market demand for recycled organic products

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
<i>Low</i>	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> EIERA Districts 	<ul style="list-style-type: none"> Statewide

Key Action Items

- Identify whether market demand for recycled organic products is a key goal
- Support education and outreach efforts surrounding this issue
- Fund investments targeting the marketability and quality of recycled organic products



5.5 Policies

Policies and regulations establish the legal and operational framework for organic waste management across the state. These define roles, set performance standards, and guide the planning, permitting, and oversight of organic waste-related activities. A clear and consistent regulatory structure helps provide environmental protection, public health, and equitable services.

The following goal and corresponding objectives and strategies aim to support policies and are explained in detail below.

GOAL 5

Develop and strengthen solid waste policies to promote diversion of organics.

Objective 1

Generate statewide policies or best management practices for organic waste processing facilities

Strategy 1

Develop best management practice for facilities handling offsite organic waste

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
Medium	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> EIERA 	<ul style="list-style-type: none"> Statewide
<i>Key Action Items</i>			
<ul style="list-style-type: none"> Refer to USCC Model Compost Rule Template²³ for example policy Recommend consistent operating practices for processing facilities Establish best management practices to add food waste to existing yard waste processing facilities 			

Objective 2

Standardize organic materials data tracking statewide

Strategy 1

Establish volunteer reporting tool for organic waste collection and processing throughput

<i>Priority</i>	<i>Material Types</i>	<i>Contributing Partners</i>	<i>District Designations</i>
High	<ul style="list-style-type: none"> All Organics 	<ul style="list-style-type: none"> EIERA MoDNR 	<ul style="list-style-type: none"> Statewide

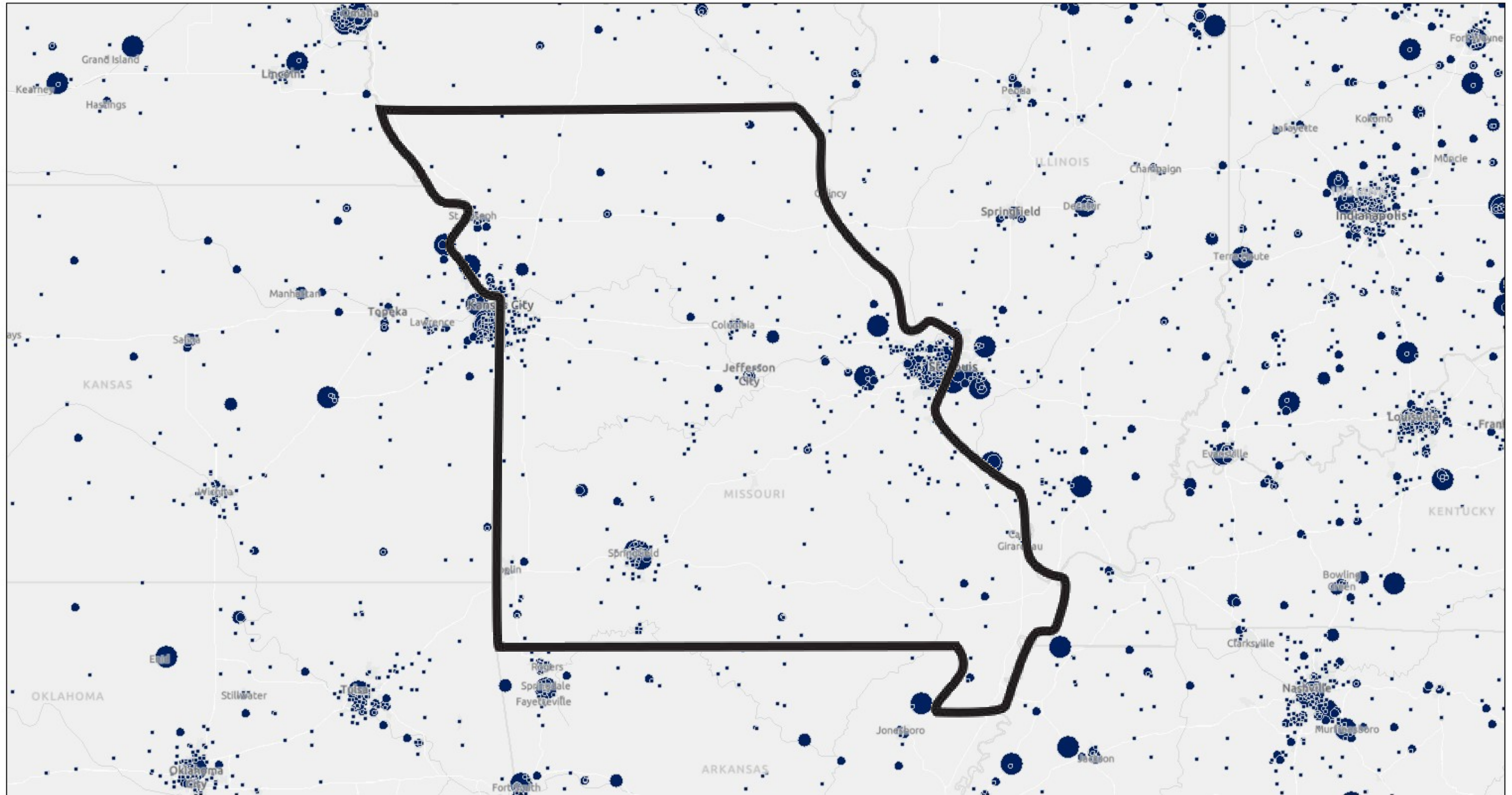


Key Action Items

- Generate standard definitions for organic material categories
- Publish a standard organic waste characterization methodology
- Establish a volunteer tool for reporting of organic waste collection and processing throughput
- Support and encourage the annual reporting of organic waste collection and processing throughput

Appendix A – Excess Food Opportunity Maps

The EPA Excess Food Opportunities Map - Food Manufacturers and Processors

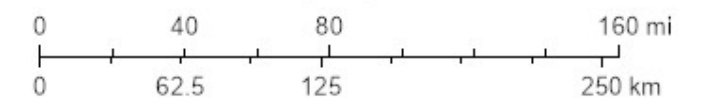


10/29/2024, 9:45:04 AM

Food Manufacturers and Processors (tons per year)

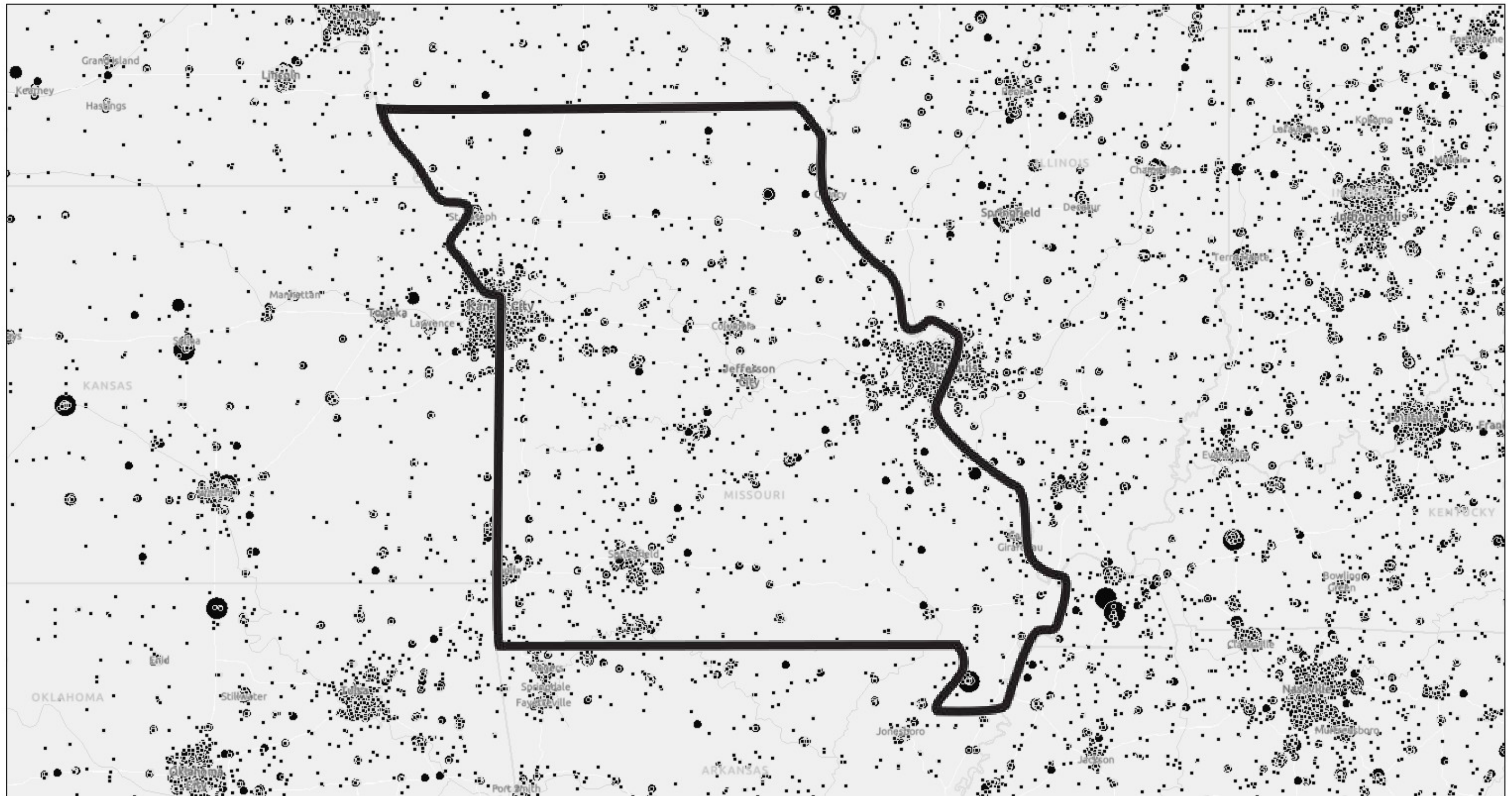
- 0 - 24
- 24 - 283
- 283 - 781
- 781 - 1,705,408

1:4,032,256



Missouri DNR, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

The EPA Excess Food Opportunities Map - Restaurants and Food Services

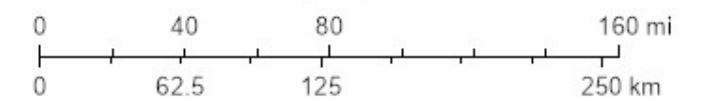


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Restaurants and Food Services (tons per year)

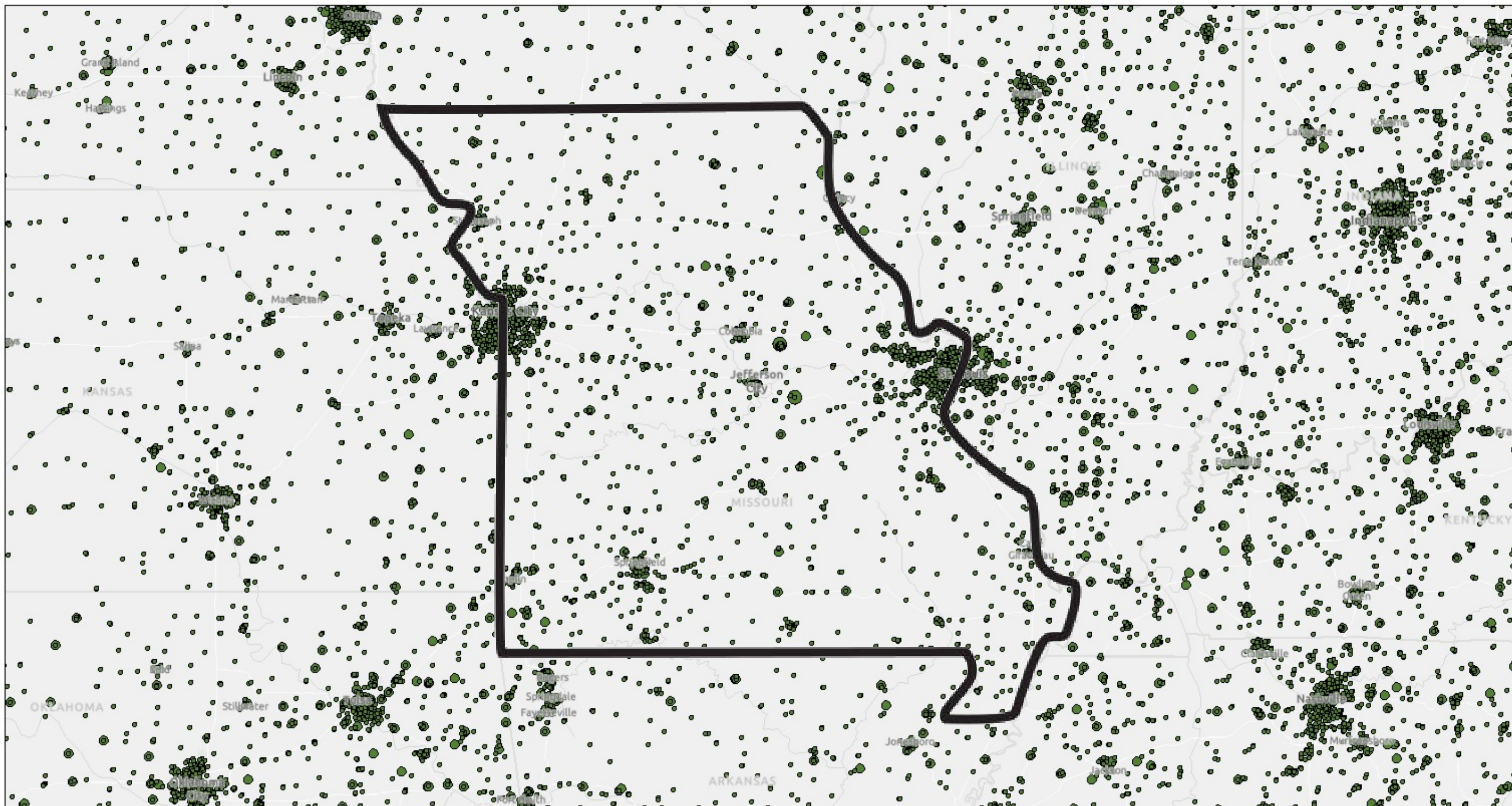
- 0 - 16
- 16 - 86
- 86 - 299
- 299 - 788

1:4,032,256



Missouri DNR, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

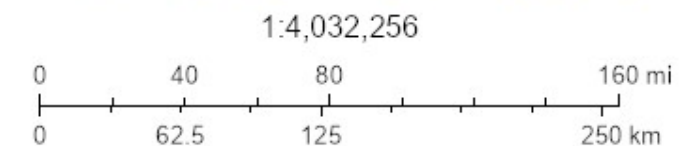
The EPA Excess Food Opportunities Map - Educational Institutions



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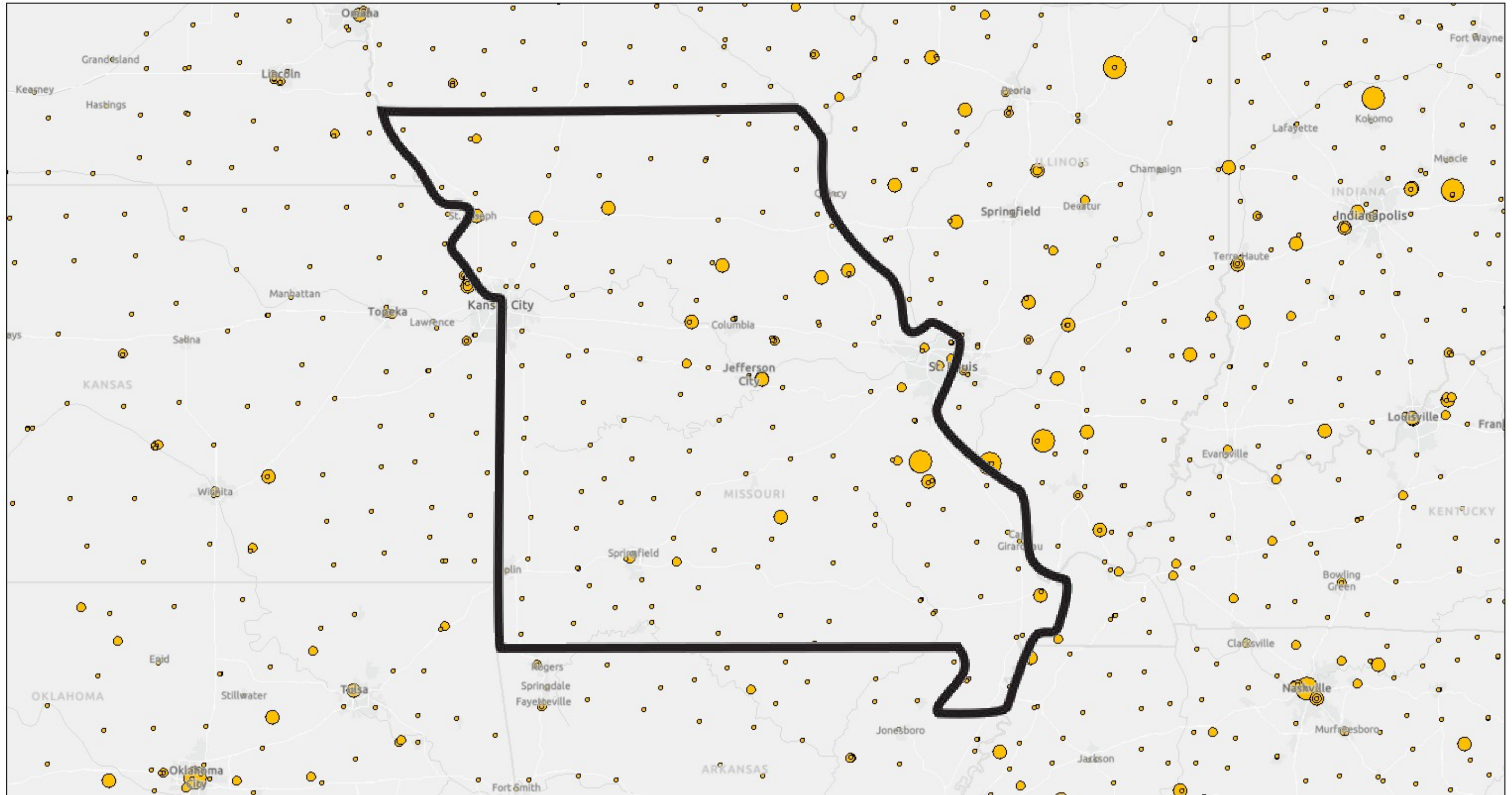
Educational Institutions (tons per year)

- 0 - 12
- 12 - 283
- 283 - 826



Missouri DNR, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

The EPA Excess Food Opportunities Map - Correctional Facilities

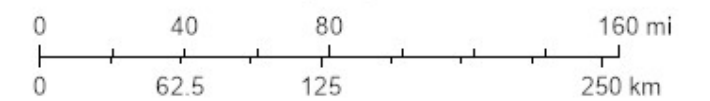


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Correctional Facilities (tons per year)

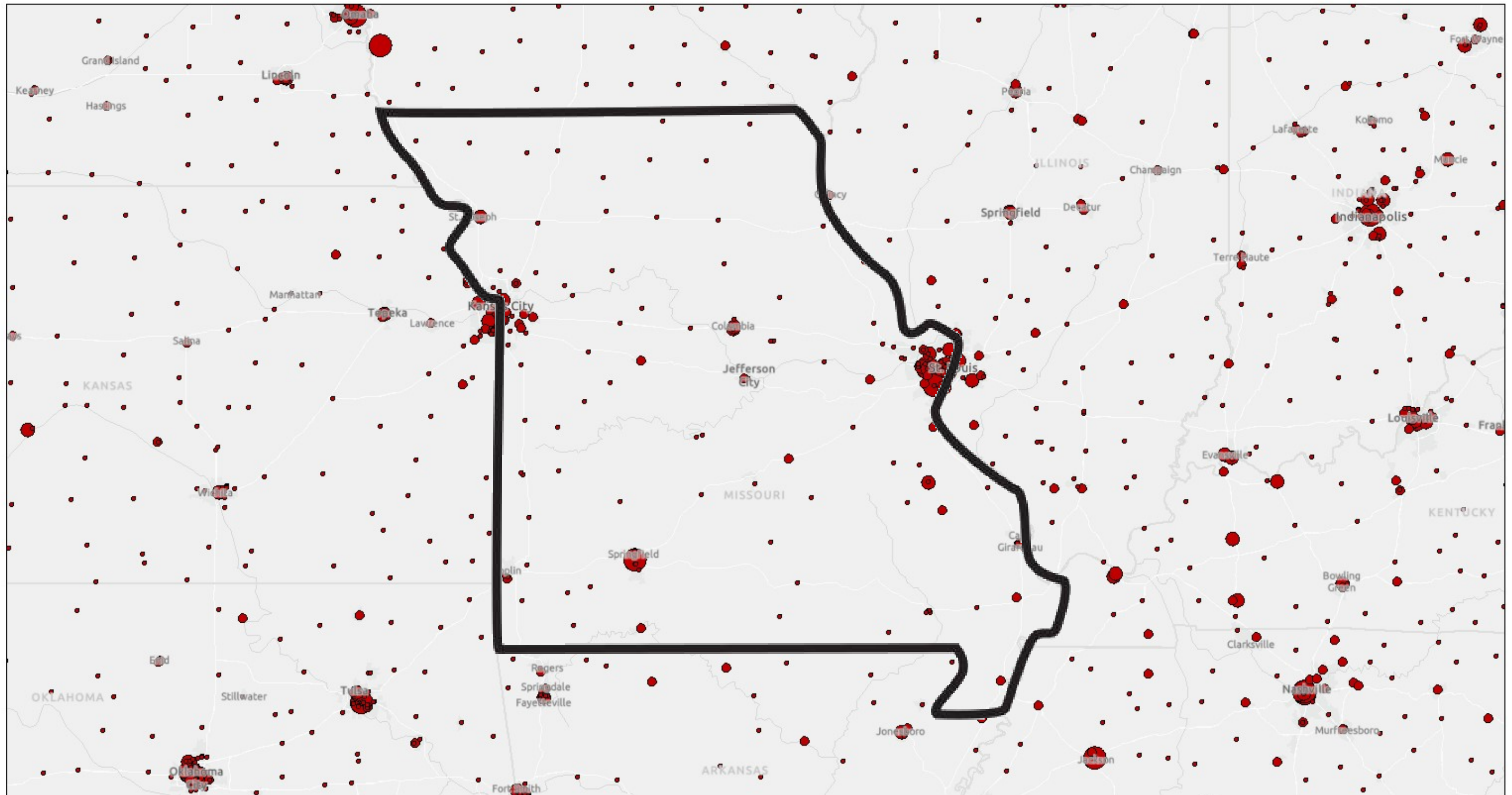
- 0 - 71
- 71 - 204
- 204 - 418
- 418 - 1,551

1:4,032,256



Missouri DNR, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

The EPA Excess Food Opportunities Map - Healthcare Facilities

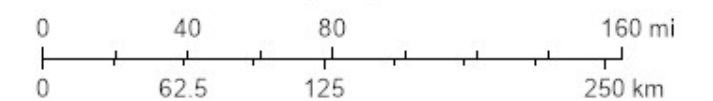


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Healthcare Facilities (tons per year)

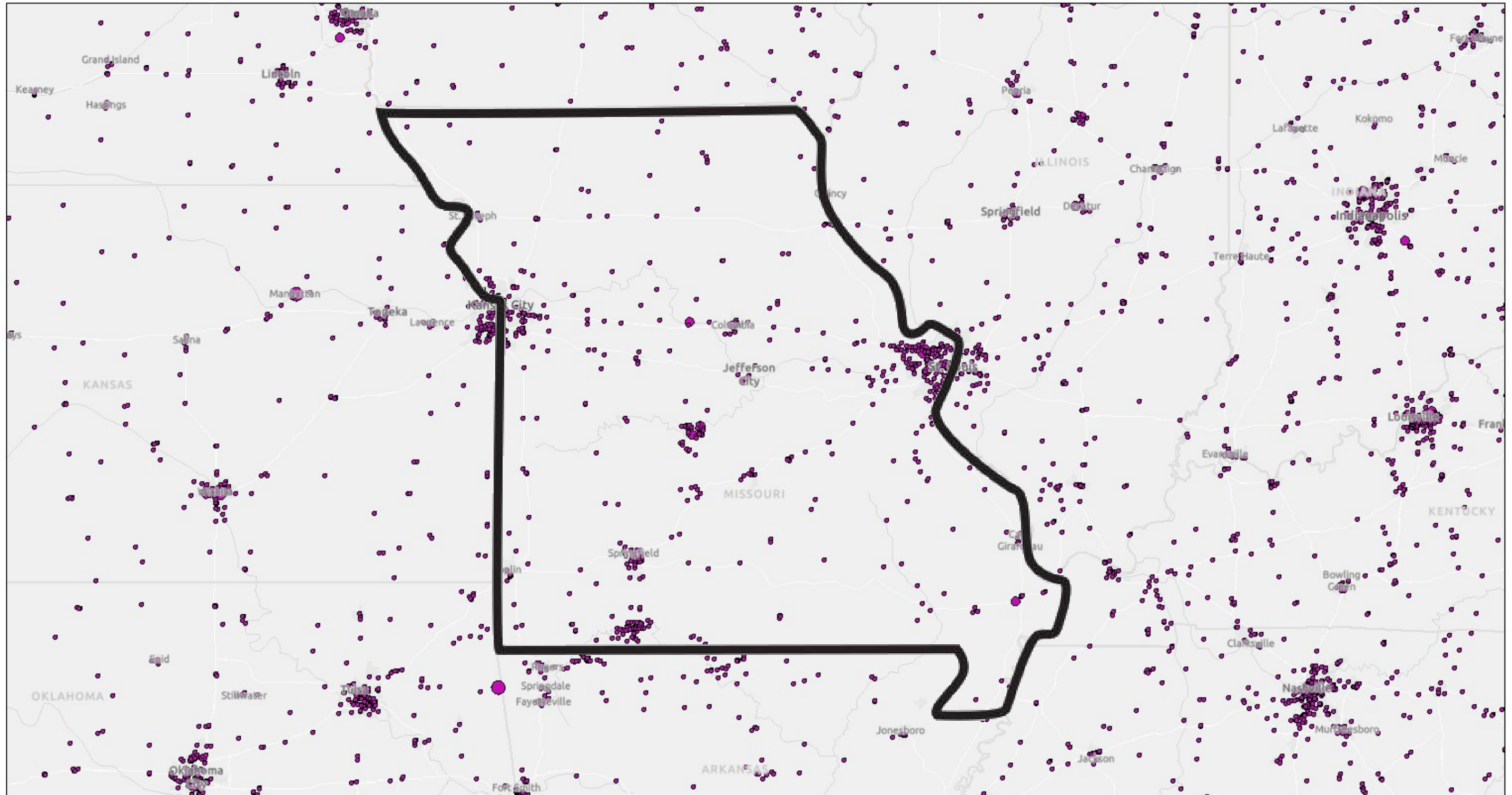
- 0 - 16
- 16 - 39
- 39 - 79
- 79 - 186

1:4,032,256



Missouri DNR, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

The EPA Excess Food Opportunities Map - Hospitality Industry

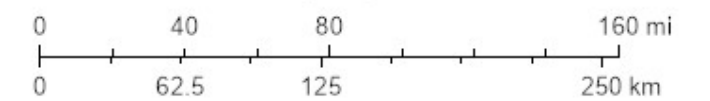


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Hospitality Industry (tons per year)

- 0 - 24
- 24 - 105
- 105 - 300

1:4,032,256



Missouri DNR, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

Appendix B – Yard Waste Drop Off and Composting Infrastructure

Appendix B - Facilities Summary

The following table summarizes organics facilities throughout the State organized by facility type such as drop-off locations, yard waste composting facilities, and yard waste and food waste composting facilities. The table includes the facility type, name, location, and District in which it resides.

Organics Infrastructure

Table 0-1: State Organics Drop Off and Processing Infrastructure Details

Facility Type	Facility Name	Facility Address	District
Yard Waste Drop Off	City Storm Debris Site	Temporary	A
	Kirksville Yard Waste Disposal and Brush Site	22376 Missouri State Highway 6	C
	City of Plattsburg Yard Waste Drop Off	SW Middle Rd, Plattsburg, MO	D
	City of Savannah Yard Waste Drop Off	501 N 11th St, Savannah, MO	D
	City of Excelsior Springs	1300 S Marietta St, Excelsior Springs, MO	E
	City of Independence	875 Vista Ave, Independence, MO	E
	City of Kansas City, MO - Chouteau Tfwy	1815 N Chouteau Trafficway, Kansas City, MO	E
	City of Kansas City, MO - Main St	11660 N Main St, Kansas City, MO	E
	City of Kansas City, MO - Raytown Rd	10301 Raytown Rd, Kansas City, MO	E
	City of Riverside (Damon Purcell Construction Company)	6305 NW River Park Dr W, Riverside, MO	E
	Eastern Jackson County Yard Waste Facility	37910 E Pink Hill Rd, Oak Grove, MO	E
	Kansas City Composting - Belton	2008 E 171st St, Belton, MO	E
	City of Concordia	442 St Louis Rd, Concordia, MO	F
	City of Higginsville	107 East 22nd Street	F
	City of Lexington	418 South 24th Street, Lexington, MO	F
	City of Odessa	401 N 1st Street	F
	City of Macon Compost Site	Blees Industrial Dr, Macon, MO	G
	City of Moberly Yard Waste Drop Off	2300 N Morley Street, Moberly, MO	G
	City of Columbia - Capen Park Drop-Off	1600 Capen Park Dr, Columbia, MO	H
	City of Columbia - Parkside Drive	Northwest Columbia, between Cosmo Park and Creasy Springs Road	H
	Jefferson City Yard Waste	708 Ellis Blvd, Jefferson City, MO	H
	City of Washington Recycle Center	400 Recycle Dr, Washington, MO	I
	City of Clinton Yard Waste Drop Off	1305 N. Washington St. Clinton, MO	J
	City of Golden Valley Yard Waste Drop Off	9 SE 400 RD Clinton, MO	J
	Ft. Leonard Wood Yard Waste Facility	Ordinance Dr, Fort Leonard Wood, MO	K
	St. James Yard Waste	325 E Springfield St, St James, MO	K

	Bonacker Farms Inc & Landscaping	4211 State Highway W, House Springs, MO	L
	St. Louis Composting - Maryland Heights	11294 Schaefer Drive, Maryland Heights, MO	L
	St. Louis Composting - St. Louis City	560 Terminal Row, St. Louis, MO	L
	University City Compost Site	975 Pennsylvania Ave, University City, MO	L
	City of Neosho Yard Waste	4700 Howard Bush Dr, Neosho, MO	M
	City of Cassville	501 Sale Barn Rd, Cassville, MO	N
	City of Springfield - Franklin Avenue Recycling Center	731 N Franklin Ave, Springfield, MO	O
	City of Springfield - Long Pine Avenue Recycling Center	3020 S Lone Pine Ave, Springfield, MO	O
	ShowMe rents in Bolivar startup	936 West Broadway, Bolivar, MO	O
	City of West Plains Yard Waste Collection Site	1851 Old Airport Rd., West Plains, MO	P
	Poplar Bluff Leaf Site	County Road 604 adjoining South "F" Street	Q
	City of Jackson Yard Waste Drop Off	420 Florence Street, Jackson MO	R
	City of Dexter Compost Facility	1302 Hwy 114 East, Dexter, MO	S
	Malden Transfer Station	Southeast Corner of Hwy 25 & Hwy 62, Malden MO	S
	City of Lebanon Public Works Facility	1401 West Commercial Street	T
	Osage Beach City Park	950 Hatchery Road	T
Yard Waste Composting Facility	Lee's Summit Resource Recovery Park - Compost Facility	2011 SE Hamblen Rd Lee's Summit, MO	E
	Rockridge Quarry (Damon Pursell Construction Company)	9001 Hickman Mills Drive Kansas City, MO	E
	Suburban Lawn & Garden Yard Waste Recycling	201 W 139 St, Kansas City, MO	E
	City of Marshall	26523 245th Road, Marshall, MO	F
	City of Sedalia	27882 Hwy U Sedalia, MO	F
	City of Columbia	5700 Peabody Road, Columbia, MO	H
	City of Rolla Yard Waste	2141 Old St James Rd, Rolla, MO	K
	City of St Peters Earth Centre	115 Ecology Drive, St. Peters, MO	L
	Fick Supply Service	501 N Eaterton Rd., Wildwood, MO	L
	Fick Supply Service	13607 Missouri Bottom Rd., Bridgeton, MO	L
	Hansen's Tree Service - St. Louis	104 Hansen Court, O'Fallon, MO	L
	St. Louis Composting - Arnold	1776 Cecos Lane, Arnold, MO	L
	St. Louis Composting - Florissant	13060 County Park Road, Florissant, MO	L
	St. Louis Composting - St. Peters MO	1 Illy Drive, St. Peters, MO	L
	St. Louis Composting - Valley Park	39 Old Elam Avenue, Valley, Park, MO	L
	City of Joplin Compost Facility	3457 W Eddy Ln, Joplin, MO	M
	City of Webb Yard Waste Disposal Facility	2100 N Madison St, Webb City, MO	M
	City of Aurora	305 State Hwy 39, Aurora, MO	N

	City of Monett	205 15th St, Monett, MO	N
	City of Cape Girardeau Yard Waste Drop Off	2007 Southern Expy, Cape Girardeau, MO	R
	Kennet City Compost Facility	18464 Co Rd 508, Kennett, MO	S
	Midwest Organics Inc	6974 State Hwy Z, Sikeston, MO	S
Food & Yard Waste Composting Facility	Missouri Organic Recycling	7700 E US Hwy 40, Kansas City, MO	E
	Urbavore Farm & Compost Collective KC	5500 Bennington Ave. Kansas City, MO	E
	Blue Bird Composting	4657 State Road, Marshall, MO	H
	New Earth Farm	2601 N 9th St., St. Louis, MO	L
	St. Louis Composting - Pacific MO	18900 Franklin Road, Pacific, MO	L
	Double O Organics	19494 Lawrence 1100, Monett, MO	N
	Hansen's Tree Service - Ozark	39 Cave Dr., Eldon, MO	T
	City of Springfield Yard Waste Recycling Center	3790 S Farm Rd 119, Brookline, MO	O
	Hansen's Tree Service - Springfield	521 US Hwy 160, Reeds Spring, MO	N

