PRODUCT STEWARDSHIP INSTITUTE

Missouri Scrap Tire Management

Program Assessment and Recommendations

Prepared by the Product Stewardship Institute, Inc.

1 Beacon Street
Boston, MA 02108

617-236-4855
productstewardship.us

The Product Stewardship Institute

The Product Stewardship Institute is a policy expert and consulting nonprofit that powers the emerging circular economy to ensure products are responsibly managed from design to end of life. In 2000, PSI pioneered product stewardship in the United States by convening diverse stakeholders to build extended producer responsibility (EPR) policies and programs. Drawing on global best practices and expansive multinational relationships, our facilitated dialogues, policy models, and expert testimony have helped enact 146 EPR laws in 34 states across 21 product categories, including packaging. Our members include state and local governments in 48 states, and we partner with more than 120 businesses, academic institutions, environmental nonprofits, and international and tribal governments. Together, we advance scalable solutions that protect people and the planet. Join us at www.productstewardship.us.

Acknowledgements

PSI would like to thank Natalie Moseley, Southwest Missouri District Planner and Tire Workgroup Chair; Nadja Karpilow, MARC Solid Waste Management District Senior Environmental Planner; and the Missouri Product Stewardship Council for their valuable feedback, guidance, and collaboration throughout this project.

PSI prepared this report for the Mid-America Regional Council Solid Waste Management District.

Project Contact

For more information, please contact Hanz Atia, Senior Associate for Policy and Programs, at hanz@productstewardship.us or 617-904-4434.

Contents

1. Introduction

Current Program Overview

Missouri's scrap tire program operates with a $0.50 fee collected on each new tire sold in the state. This fee is collected by the Missouri Department of Revenue funds the program's operations and grants. The same bill that instituted the fee also banned whole tires from landfills statewide.

The fee structure was established by Senate Bill 530 in 1990, was renewed by SB 225 in 2005 and SB 295 in 2023, which extends the tire fee's end date to December 31, 2034.

The $0.50 fee has remained unchanged since its creation in 1990, over 35 years ago.

The Missouri Department of Natural Resources (MDNR) oversees the program, focusing on:

- Permitting of scrap tire facilities and haulers
- Ensuring proper disposal mechanisms for purchased tires
- Providing avenues for private property owners, nonprofits, and municipalities to address tire disposal issues
- Investigating illegal dumping incidents through field staff

Currently, approximately 6 million scrap tires are generated annually in Missouri (roughly one per resident). The state has 75 permitted scrap tire haulers (68 based in Missouri, with additional out-of-state haulers).

Separate from the fee, consumers typically pay an additional $3-5 per tire when returning scrap tires to retailers for proper management.

Key Challenges and Barriers

Illegal Dumping

- Dumping tires carries zero apparent cost to dumpers but significant cleanup costs for local governments
- Rural residents may find proper disposal burdensome due to transportation requirements and fees
- Reduced frequency of scrap tire cleanup events may be contributing to the continued accumulation of tire piles across the state.

Rural-Urban Service Disparities

- Urban areas are more likely to have tire collection availability

- Rural counties have significantly fewer or no collection events, contributing to improper disposal in these areas

Funding Limitations

- The $0.50 per tire fee is not enough to fund state-wide tire management programs alone.
- Approximately $1 million is available for grants: half for playground projects, half for non-playground uses. This narrow scope of permissible projects restricts the development of tire end-markets.

Market Development Barriers

- MoDOT's roadway specifications do not currently include rubber-modified asphalt. While updates are in development, this gap remains a barrier to widespread use of recycled tires in Missouri roadways.
- Scrap tire management grants do not currently allow for road construction uses, limiting a potentially high-volume market for recycled tire material.
- Lack of in-state manufacturers for recycled tire products
- While Missouri has at least one large-volume processor, in-state manufacturers of recycled tire products remain limited.

2. Missouri PSC Tire Survey Results

2023 MO PSC Tire Survey Results

In 2023, the Missouri Product Stewardship Council's Tire Workgroup created an initial survey to assess challenges and perspectives on tire management issues. The survey of 38 stakeholders represented municipal and county governments, solid waste management districts, non-profit organizations, private companies, and manufacturers across Missouri. Responses represented 13 of the 20 Missouri solid waste districts. The key findings are summarized below, and full survey results can be accessed here: 2023 Missouri PSC Tire Survey Report

Drop-off Access Issues:

- 76.9% of respondents indicated there are not enough drop-off locations for used tires in their areas
- Only 33.3% reported having active tire collections within their districts
- Several respondents noted that previous DNR tire "round-ups" were effective but have been discontinued

Primary Barriers to Proper Disposal:

- Cost (76% of respondents) was identified as the top barrier to proper tire disposal
- Distance to travel to disposal sites (44%) was the second most significant barrier
- Difficulty transporting tires (28%) was also noted as a challenge

Illegal Dumping Patterns:

- 84% of respondents reported passenger car tires are dumped more frequently than tractor tires
- Most respondents (44.4%) were from Southeast Missouri RPC, suggesting regional concentration of concerns
- Several reported that when disposal fees increase, they observe more illegal dumping

Local Government Perspectives:

- Local government stakeholders (41.7% from solid waste management districts, 20.8% from county government, and 20.8% from municipal government) expressed frustration with bearing cleanup costs
- Some municipalities report challenges with storing illegally dumped tires, which are kept at transfer stations or in sheds with limited capacity, before paying haulers to move them to a recycler.
- Most respondents indicated that cleanups are done by property owners or local governments at their own expense

Suggested Improvements:

- No-cost or low-cost drop-off locations (reduces the primary barrier)

- Reinstating regular tire collection events at the county level with predictable scheduling
- Mandatory tire exchange when purchasing new tires
- Better access to cleanup funds for local governments
- Enhanced education and awareness campaigns
- Improved collaboration between retailers, waste districts, and local governments

These survey findings reinforce many of the challenges identified in stakeholder interviews and highlight specific concerns of local stakeholders dealing with tire disposal and illegal dumping issues in their communities.

2025 MO PSC Tire Survey Results

The Spring 2025 follow-up tire survey resulted in 42 total responses from 13 of the 20 Missouri solid waste districts, providing valuable data on tire management challenges and needs. The survey results highlight funding and access challenges; 76% of respondents identified cost as the primary barrier to proper disposal, with rural-urban service disparities contributing to illegal dumping patterns where 84% reported passenger car tires as the most frequently dumped type. The key findings are summarized below, and full survey results can be accessed here: 2025 Missouri PSC Tire Survey Report

High Demand for Services:
- 60% of respondents report residents contacting their offices about tire disposal options at least monthly, with 28% receiving weekly inquiries
- This indicates sustained public demand despite existing disposal options

Limited Formal Programs:
- 59% of jurisdictions lack formal tire management programs entirely
- Only 9% have well-established programs, suggesting significant program development opportunities

Processing vs. Landfilling:
- 65% of collected tires go to licensed processors, 35% end up in landfills
- This suggests room for improvement in proper tire processing to increase recycling

State Program Utilization:
- 80% of respondents do not receive funding from Missouri's Scrap Tire Program
- 75% are unaware of other organizations in their district receiving program funding
- This indicates low program visibility and underutilization of available state resources

Overwhelming Resource Constraints:
- 84% identified additional funding as their most critical need
- 80% cited limited resources for cleanup and management as their biggest challenge
- 68% face budget constraints as their primary operational challenge

Distance and Convenience Barriers:

- 75% identified lack of convenient disposal options as a major barrier
- This surpassed cost concerns (40% citing disposal fees as too high), suggesting access is more critical than affordability

Enforcement Challenges:

- 58% struggle with catching illegal dumpers
- 65% pointed to inadequate enforcement of dumping laws

These findings highlight significant underutilization of state resources, widespread funding constraints, and persistent access barriers that exceed cost concerns as the primary obstacles to effective tire management in Missouri.

3. Missouri and Neighboring States Tire Management Comparison

1. **Fee Structure**: Missouri's $0.50 fee applied to the retail sale of every new tire is the lowest among its neighbors that collect fees (except for Kansas at $0.25). Most neighboring states collect $1.00 or more per tire.
2. **Fund Allocation**: Missouri's allocation system is relatively detailed and balanced compared to neighbors, with specific percentages for cleanup and enforcement, market development through grants, and education.
3. **Program Requirements**: Missouri's requirements for haulers and processors are largely in line with neighboring states, though Missouri does not require financial assurance for haulers while many neighbors do.
4. **Stockpile Management**: Missouri maintains active cleanup programs like most of its neighbors.
5. **Market Development**: Missouri allocates a significant portion (45%) of fees to market development, which appears to be a higher priority than in some neighboring states.
6. **Grant Eligibility**: Missouri's program has broad eligibility for nonprofits and local governments, similar to several neighbors but more inclusive than some.
7. **Landfill Restrictions**: Missouri allows cut/shredded tires in landfills like most neighbors, though Nebraska has stricter restrictions.

See Tables 1 and 2 for a more detailed comparison of tire management programs across Missouri’s neighboring states.

Table 1. State Tire Management Program Comparison: Fee Amount, Description, and Allocation

State	Fee Amount	Fee Description	Fee Allocation
Missouri	**$0.50**	Revenues generated from the scrap tire fee are deposited into the Scrap Tire Subaccount of the Solid Waste Tire Fund. These funds are then made available as follows: 50% for compliance, enforcement, and administration; 45% for grants for market development; up to 5% on educational programs and curriculum on solid waste management. Tires that are not subject to the tire fee include used tires, recapped tires, and tires for farm implement machinery, manufactured homes, cotton trailers, and bicycles.	• 50% for tire site cleanups • 45% for market development grants • Up to 5% for educational programs
Oklahoma	**$2.50 or $3.50+ (based on size)**	$2.50 for rim 19.5 or less $3.50 for rim greater than 19.5, $1.00 for motor cycle tires. Larger fees up to $16/tire on super single, Ag and Big Ag tire, depending on type and size. Funds used for reimbursement of collection and processing tires. Funds also used to subsidies end users of tire-derived products.	• Reimbursement for collection/processing • Subsidies for end users
Illinois	**$2.50**	38% goes to Illinois EPA for prevention and removal of scrap tires. 23% goes to Dept. of Commerce & Community Affairs for grants and loans to local gov. or private agencies to collect and process used & waste tires. 25% goes to Dept. of Public Health to prevent scrap tire waste disease. 2% goes to Dept. of Agriculture, 2% goes to Pollution control Board, 10% goes to Dept. of Natural Resources.	• 38% to IL EPA for prevention/ removal • 23% for grants/loans to local governments • 25% to Dept. of Public Health • 14% to other agencies
Arkansas	**$2.00 (auto) $3.00 (truck)**	$2.00 /auto $3.00 / big truck tires with rims <20 in. The tire retailer may retain 5% of the fee to cover administrative costs.	• Retailers may retain 5% for administrative costs • Remainder to regional solid waste management districts
Kentucky	**$2.00**	Retailers will pay the State 95% of their fees and may keep 5% of the handling fee; the State allocates these to the waste tire management fund. The fund is used to conduct waste tire collection events, provide annual funding directly to counties for waste tire management, award crumb rubber and rubber-modified asphalt grants, facilitate market development for the use of waste tires, and to clean up waste tires at mismanaged sites.	• 5% to retailers • 95% to waste tire management fund for cleanup, collection events, grants
Tennessee	**$1.35**	This fee applies to all sales of new tires for use on motor vehicles. Tire dealer keeps $0.10. The Counties are reimbursed $1.00 per tire for waste tires received from dealers that result from new tire sales.	• Dealers keep $0.10 • Counties reimbursed $1.00 per tire for waste tires from new tire sales
Nebraska	**$1.00**	Fee is on each new tire purchased in the State goes towards the waste reduction and recycling incentive fund, where $1.5 million is set aside for scrap tire projects.	• $1.5 million set aside for scrap tire projects
Kansas	**$0.25**	100% goes to state. This fund is used for program management, personnel, emergency pile cleanup, and grants. The Kansas Department of Health and Environment allocates some funding towards waste tire grants and the Orphaned Waste Tire Program.	• Program management, personnel • Emergency pile cleanup • Grants
Iowa	**No state fee**	No fee is collected by the state, and there is no tire program.	No state program

Table 2. State Tire Management Program Comparison: Landfill Restrictions, Eligible Grant Recipients, Market Development

State	Landfill Restrictions	Eligible Grant Recipients	Market Development / Expenses
Missouri	Cut/shredded tires allowed Whole tires prohibited	Public & Private schools, park districts, nonprofit day care centers, other nonprofit entities and governmental organizations other than state agencies are eligible	• Universities conducting research on crumb rubber in asphalt • Products: playground surfacing, sports fields, rubber mulch • MoDOT exploring rubberized asphalt applications
Oklahoma	Cut/shredded tires allowed Whole tires prohibited	Not specified	Subsidies for end users of tire-derived products with varying fee structure based on tire size
Illinois	**Landfill ban** (Neither whole nor shredded tires allowed)	Not currently specified	Statutes for grant program are still the same but is currently defunded. New legislation has been introduced to refund tire grant programs.
Arkansas	Cut/shredded tires allowed Whole tires prohibited	Regional solid waste management districts	There are numerous requirements including but not limited to: being a regional solid waste management district, having an approved tire plan on file with ADEQ, applying for funding biennially for an approved use of the funds, following county purchase procedures and public noticing app and bidding out services, district and/or contractors having required licenses and permits.
Kentucky	Cut/shredded tires allowed Whole tires prohibited	Local Governments Schools, Parks	The amount is determined annually based upon estimated costs to complete clean-ups and run drop off program. Up to $500,000 in grant funding will be available for local road projects that utilize rubber-modified asphalt manufactured from waste tires; Grant funding up to $4,000 is available to counties to help pay for the disposal or recycling of waste tires; up to $500,000 in grant funding is available for landscaping mulch projects, walking trails, pour-in-place playgrounds, sidewalks or other surfaces, horse trailer or stall mats, tree wells or other projects that utilize recycled Kentucky waste tires.
Tennessee	Cut/shredded tires allowed Whole tires prohibited	Not specified	County-based reimbursement system
Nebraska	**Landfill ban** (Neither whole nor shredded tires allowed)	Political Subdivisions	100% of costs of tire clean ups - 25% retail cost of tire-derived products - 50% of the cost of crumb rubber with a preference given to crumb rubber made from Nebraska Scrap Tires $20/ton reimbursement for scrap tire processing, manufacturing, and civil engineering uses 50% cost of equipment cost to collect, transport, & process scrap tires
Kansas	Cut/shredded tires allowed Whole tires prohibited	Local Governments, Public and Private K-12 schools	For the purpose of purchasing waste tire products for playgrounds.
Iowa	**Landfill ban** (Neither whole nor shredded tires allowed)	"End Users"	Limited state involvement

4. End Markets and Recycling Opportunities

Several markets exist for recycled tire materials in Missouri. However, opportunities to recycle the 6 million+ tires generated in Missouri are limited. Below is a list of existing and developing end market opportunities for recycling tires:

Infrastructure Applications:

- Missouri Department of Transportation (MoDOT) is considering adoption of specifications for rubberized asphalt, though current state leadership has limited its use due to safety concerns.
- Current economic circumstances present challenges for rubberized asphalt adoption, as MoDOT primarily uses poly phosphoric acid (PPA) as an asphalt additive rather than rubber, which is less expensive but may not perform as well.
- Research and development into rubber-modified asphalt (RMA) has elevated the issue among MoDOT engineers, with several pilot projects now underway across the state. In Kansas City, crews recently laid asphalt containing both rubber and recycled plastic along a municipal road, and RMA has also been used along Interstates 44, 70, and 155, as well as U.S. Highway 63 near Rolla.

Recycling Operations:

- Facilities like ecoSHRED (Springfield) process tires into various products:
  - Playground/landscaping rubber mulch (high demand)
  - Pour-in-place (PIP) surfacing materials using smaller crumb rubber
  - 5-9 mesh material for running track surfaces
  - Materials ranging from 3x3" chips to fine powders for asphalt
  - Highest demand is for 10-20 mesh material used in sports fields (250,000-300,000 lbs. per field)

Research and Innovation:

- University of Missouri researchers are developing advanced recycling methods for tires and other materials
- Work is ongoing to create economic incentives for contractors to adopt recycled materials
- Research partnerships between academia and industry are helping advance rubber-modified asphalt technologies

5. Recommendations for Program Improvement

Based on stakeholder input, the following recommendations would enhance Missouri's tire management program:

1. **Funding Structure Reform:**
   - Increase the per-tire fee to better fund program activities and enforcement
   - Explore mechanisms to connect fee collection with end-market development

2. **Education and Outreach Enhancement:**

Develop targeted educational initiatives for:

   - Local government officials about economic and environmental benefits of tire recycling
   - Consumers regarding proper disposal options
   - Road construction decision-makers about the benefits of rubberized asphalt
   - Ensure consistent messaging from multiple credible sources

3. **Rural Collection Improvement:**
   - Establish more collection events in underserved rural counties
   - Consider mobile collection options to reach remote areas
   - Address the transportation and cost barriers faced by rural residents

4. **End Market Development:**
   - Encourage MoDOT to reevaluate the use of PPA versus rubber in asphalt applications
   - Support economic research demonstrating the long-term benefits of rubber-modified asphalt
   - Provide incentives for in-state manufacturing of recycled tire products

5. **Enforcement Enhancement:**
   - Strengthen penalties for illegal dumping
   - Improve coordination between environmental regulators and law enforcement
   - Develop a more robust system for tracking and addressing illegal dump sites

6. **Grant Program Improvements:**
   - Expand eligibility to include more applications, such as loose-fill rubber mulch
   - Streamline the application process while maintaining accountability
   - Prioritize projects using Missouri-sourced materials and in-state manufacturers

7. **Research Support:**
   - Continue partnerships with universities for developing new applications
   - Fund demonstration projects to validate new technologies

- Facilitate knowledge transfer between researchers and industry

These recommendations aim to address the core challenges identified while building upon existing program strengths and stakeholder expertise.

Proposed Implementation Strategy & Timeline

The following implementation strategy provides a phased approach to addressing Missouri's tire management challenges, building from the survey findings that revealed significant underutilization of state resources, widespread funding constraints, and persistent access barriers. This timeline prioritizes immediate actions that can leverage existing infrastructure and relationships, followed by medium-term initiatives that expand services and partnerships, and concluding with long-term systemic changes that could fundamentally transform Missouri's approach to tire waste management. The strategy emphasizes coordination between state agencies, local governments, and industry stakeholders to maximize the impact of available resources while building toward a more sustainable and comprehensive tire management system.

Immediate Actions (0-6 months):

- Conduct cost-benefit analysis of fee increase
- Promote scrap tire program services to local governments
- Create education materials about proper disposal / grant opportunities
- Identify existing tire drop-off locations for consumers

Medium-Term (6-18 months):

- Collection events in underserved areas – *encourage industry involvement?*
- Promote scrap tire grant application process
- Connect potential partners for end-market pilots
- Develop partnerships with retailers for point-of-purchase consumer education
- EcoSHRED facility tours

Long-Term (18+ months):

- Develop Extended Producer Responsibility framework
- Develop in-state end markets through targeted investments
- Build state / regional collaboration across waste districts, industry