

SOUTH CAROLINA

Waste Tire Management at a Crossroads

A Special Report Prepared by the
S.C. Department of Health and Environmental Control



2022

Introduction



South Carolina’s waste tire management program has been a success story from its beginning in fiscal year (FY) 1994 (July 1, 1993 to June 30, 1994) – with counties recovering nearly 110 million tires from current generation and stockpiles of illegally dumped or stored tires across the state.

The end-of-life management of waste tires was addressed with the passage of the S.C. Solid Waste Policy and Management Act (Act) of 1991 (Section 44-96-170). The Act:

- **Bans the disposal of whole tires in landfills;**
- **Requires county governments to manage waste tires generated within the county with collection and enforcement programs;** and
- **Places a \$2 fee on the purchase of specific new tires to provide funding for the proper management and recycling of tires.** More than \$110 million has been allocated to the program since FY94. (See page 5 for additional information.)

Why the special attention? If improperly managed, waste tires (also known as scrap tires) pose a potential threat to human health, safety and the environment. (See “Why recover waste tires?” on page 2 for additional information.)

Nearly 30 years later, issues have emerged that threaten the program.

Two key challenges are:

1. **Significant increased costs for the collection, hauling and processing of waste tires that current funding cannot match – resulting in a spiraling price tag for county governments.** In turn, this may limit waste tire collection services, require moving funding from traditional recycling programs to offset costs, result in increased storage until funding is available or disposal; and
2. **Limited markets.** Markets such as tire-derived fuel, crumb rubber and civil engineering applications are available with emerging technologies on the horizon, but most current markets are not economically feasible and/or face resistance from various stakeholders. (See “Waste Tire Markets” on page 8 for more details.)

This report is designed to provide information to assist stakeholders in addressing those two challenges. It includes tire recovery data with cost and funding information as well as a checklist of possible actions for stakeholders to consider.

Tires are essential to our lives.

Proper management of waste tires is just as essential.

Table of Contents

SECTION 2: Tire Recovery by Counties.....	2
Waste Tires Recovered by Tons, Tire Quantity and Per Capita from FY00 to FY21.....	3
Waste Tires Recovered by Tons and County Leaders from FY10 to FY21.....	3
Waste Tire Stockpile Clean-Ups by Tons and Tire Quantity from FY94 to FY22.....	4
SECTION 3: Costs and Funding	5
Funding for Waste Tire Management from FY10 to FY22.....	7
Grants Awarded to Counties from FY94 to FY23.....	7
County Government Collection of Waste Tire Fees for FY22.....	7
SECTION 4: Waste Tire Markets.....	8
SECTION 5: South Carolina’s Waste Tire Markets.....	10
SECTION 6: For Your Consideration: Waste Tire Management Checklist.....	12

Tire Recovery by Counties



Counties have reported nearly 110 million waste tires have been diverted from disposal and recovered in South Carolina's statewide program since fiscal year (FY) 1994 (July 1, 1993 to June 30, 1994). That's an average of more than 4.2 million waste tires per FY.

It is important to note that these numbers do not include waste tires sent directly to recyclers and not through county programs.

Tables on pages 3 and 4 provide historical data including tires recovered by tons and their tire equivalents from FY00 to FY22, county leaders from FY10 to FY21 and number of tires recovered in stockpile remediation from FY94 to FY22.

Data collection from FY94 to FY99 is incomplete, but it is estimated that 19.2 million tires were recovered during those years. While reviewing Tables 2.1 to 2.3, it is important to note the following:

- **South Carolina's program targets specific waste tires generated by residents - car and truck, motorcycle, bus and tractor trailer.** The program does not target waste tires generated by businesses, but all tires must be recycled in South Carolina.
- **Data is collected from counties - which are required by law to report the number of tires recycled in their jurisdiction to DHEC each FY.**
- **The majority of waste tires are recovered by retailers when consumers buy new tires.** Actual tire recovery is higher, but currently there is no process to quantify the amount of tires recycled by new tire dealers and sent directly to processors.
- **This report reflects the longtime industry standard that one ton of waste tires equals 89 tires.** In May 2021, the Tire Industry Association, after conducting a field study of waste tires, updated the average weight for passenger and light truck tires taken off vehicles from 20 pounds to 25 pounds. This figure, known as Passenger and Light Truck Tire Equivalent (PLTTE), is important

because it is used in waste tire rules and regulations in many states. The new standard is one ton of waste tires equals 80 tires.

- **It is an industry standard that one waste tire is generated per person per year.**
- **It is also estimated that one new tire is purchased per person per year.** Given that, South Carolina purchased 5.2 million tires and counties reported 3.6 million tires recycled in FY21 - giving the state a projected 69.8 percent recycling rate.

Why recover waste tires?

The risks include:

- **Illegal dumping and stockpiles;**
- **Rainwater accumulation in tire piles creates an ideal environment for mosquitoes that can transmit illness;**
- **Fire hazards from tire piles.** Tire fires - which are extremely difficult and expensive to extinguish - release toxic air pollutants and can cause rubber to decompose into oil that can contaminate ground and surface water; and
- **Harm to a community's reputation and lower property values due to illegal dumping and tire piles.**

The benefits include:

- **Protection of human health;**
- **Reduction of illegal dumping in abandoned lots, lakes, rivers and streams, along the side of the road, in the woods and sensitive habitats;**
- **Conservation of natural resources; and**
- **Saved landfill space.**

Tire Recovery by Counties

TABLE 2.1: Waste Tires Recovered by Tons, Number of Tires and Per Capita from FY00 to FY21

FISCAL YEAR	POPULATION	TONS	NUMBER OF TIRES	PER CAPITA
2021	5,190,705	40,112.28	3,569,992.92	0.70
2020	5,160,174	39,361.08	3,503,136.12	0.68
2019	5,084,127	45,687.07	4,066,149.23	0.80
2018	5,024,369	35,098.37	3,123,754.93	0.62
2017	4,961,119	40,680.44	3,620,559.16	0.73
2016	4,896,146	61,017.79	5,430,583.31	1.11
2015	4,832,482	51,663.84	4,598,081.76	0.95
2014	4,774,839	45,959.99	4,090,439.11	0.87
2013	4,723,723	48,940.00	4,355,660.00	0.92
2012	4,679,230	45,080.21	4,012,138.69	0.86
2011	4,625,364	37,106.02	3,302,435.78	0.71
2010	4,576,446	55,055.40	4,899,930.60	1.07
2009	4,494,435	28,042.80	2,495,809.20	0.55
2008	4,428,393	53,537.00	4,764,793.00	1.08
2007	4,343,204	82,933.50	7,381,081.50	1.70
2006	4,278,134	62,765.00	5,586,085.00	1.37
2005	4,198,068	62,736.00	5,583,504.00	1.33
2004	4,147,152	27,322.00	2,431,658.00	0.58
2003	4,107,183	29,774.00	2,649,886.00	0.64
2002	4,063,011	43,836.00	3,901,404.00	0.96
2001	4,012,012	39,256.00	3,493,784.00	0.87
2000	3,885,740	43,136.00	3,839,104.00	0.99
TOTAL	—	1,019,100.79	90,699,970.30	—

SOURCE: U.S. Census Bureau and S.C. Solid Waste Management Annual Report

NOTES: Data collected from FY94 to FY99 is incomplete, but it is estimated that 19.2 million tires were recovered. The totals in this table include stockpile tires recovered, but not tires sent directly to recyclers by new tire retailers.

TABLE 2.2: Statewide Waste Tires Recovered - Total Tons by FY and County Leaders

FISCAL YEAR	TOTAL TONS	COUNTY LEADERS BY TONS
2021	40,112.28	1) Horry, 5,968.09 - 2) Greenville, 5,596.43 - 3) Charleston - 3,196.06
2020	39,361.08	1) Horry, 5,678.58 - 2) Greenville, 4,649.60 - 3) Charleston, 3,007.28
2019	45,687.07	1) Aiken, 6,604.92 - 2) Lexington, 4,926.09 - 3) Horry, 4,790.47
2018	35,098.37	1) Greenville, 4,079.85 - 2) Horry, 4,000.85 - 3) Charleston, 3,157.61
2017	40,680.44	1) Horry, 4,510.17 - 2) Greenville, 4,293.27 - 3) Richland, 3,576.41
2016	61,017.79	1) Greenville, 9,923.57 - 2) Horry, 5,647.01 - 3) Charleston, 4,791.00
2015	51,663.84	1) York, 8,304.88 - 2) Lexington, 8,007.77 - 3) Greenville, 4,584.18
2014	45,959.99	1) York, 9,000.07 - 2) Greenville, 7,713.23 - 3) Horry, 4,342.35
2013	48,940.00	1) Greenville, 9,203.55 - 2) Horry, 4,875.56 - 3) Charleston, 3,393.64
2012	45,080.21	1) Greenville, 9,256.97 - 2) Horry, 4,296.65 - 3) Charleston, 3,203.49
2011	37,106.02	1) Greenville, 7,664.79 - 2) Horry, 3,528.39 - 3) Charleston, 2,577.43
2010	55,055.40	1) Richland, 5,702.70 - 2) Greenville, 5,610.90 - 3) Spartanburg, 5,218.60
TOTAL	545,762.49	TOTAL TIRES 48,572,861.6

SOURCE: S.C. Solid Waste Management Annual Report

Stockpile Tire Recovery

Table 2.3: Waste Tire Stockpile Cleanups by Tons and Tire Quantity from FY94 to FY22

FISCAL YEAR	TONS	NUMBER OF TIRES	GRANT
2022	52.83	4,701.87	\$15,420.76
2021	8,730.41	777,006.49	\$2,054,795.98
2020	434.00	38,626.00	\$140,193.83
2019	13,322.44	1,185,697.16	\$3,133,626.32
2018	792.41	70,524.49	\$212,058.00
2017	1,136.95	101,188.55	\$445,540.91
2016	682.46	60,738.94	\$144,651.99
2015	264.23	23,516.47	\$22,696.77
2014	0.00	0.00	\$5,232.00
2013	656.32	58,412.48	\$99,686.55
2012	301.30	26,815.70	\$48,506.70
2011	111.95	9,963.55	\$33,585.00
2010	84.61	7,530.29	\$15,605.52
2009	2,329.41	207,317.49	\$267,122.79
2008	18.15	1,615.35	\$1,862.98
2007	284.46	25,316.94	\$51,202.80
2006	0.00	0.00	\$0.00
2005	174.30	15,512.70	\$22,029.41
2004	65.60	5,838.40	\$26,467.00
2003	709.37	63,133.93	\$126,718.02
2002	309.89	27,580.21	\$30,989.00
2001	4,373.18	389,213.02	\$437,318.00
2000	8,228.67	732,351.63	\$822,867.00
1999	899.00	80,011.00	\$89,900.00
1998	2,105.65	187,402.85	\$210,565.00
1997	24,875.27	2,213,899.03	\$2,487,527.00
1996	3,895.49	346,698.61	\$389,549.00
1995	17,259.39	1,536,085.71	\$1,725,939.00
1994	13,229.49	1,177,424.61	\$1,322,949.00
TOTAL	105,327.23	9,374,123.47	\$14,336,606.33

SOURCE: DHEC

NOTE: No waste tire cleanups were conducted in FY06 or FY14. The funding provided in FY14 was to reimburse a county for the costs of having staff monitor a site before cleanup.

Costs and Funding



The issue is simple.

The funding for the required management of waste tires is based on an advance recycling fee set in 1991. The cost of management has increased since then and significantly in the past few years. The status quo is not sustainable.

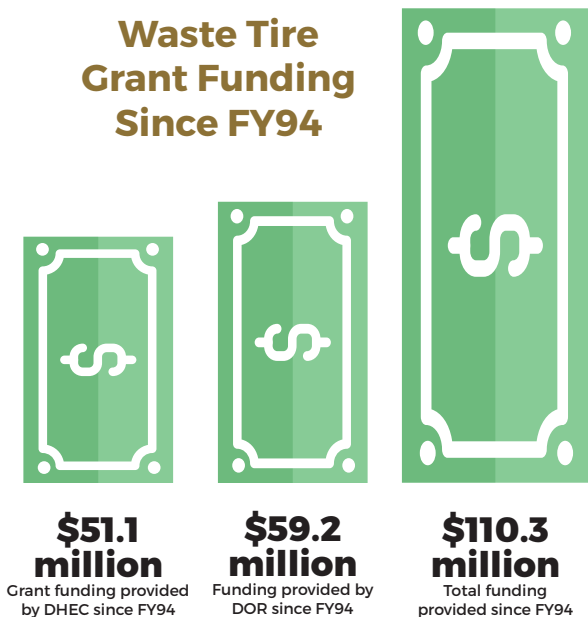
- **Funding to counties for the proper management of waste tires is provided by a \$2 consumer fee placed on the purchase of specific new tires.** The fee is collected by the S.C. Department of Revenue (DOR). In turn, counties receive funding from DOR

(based on population) and through grants from the S.C. Department of Health and Environmental Control (DHEC). See infographics below and Table 3.1 and Table 3.2 on page 7 for additional information.

- **The cost of collecting, hauling and processing tires has increased 53.5 percent from fiscal year (FY) 2018 (July 1, 2017 to June 30, 2018) to FY23** (i.e., a state average of \$122.93 to an average of \$188.72 per ton). Even from FY22 to FY23, there was nearly a 21 percent surge in average costs (\$156.39 to \$188.72).
- **Overall, the average cost for recovering one waste tire surged from 59 cents in FY10 to \$1.70 per tire in FY21** – a 188.5 percent increase. This does not include a county’s overhead (e.g., equipment, staffing).
- **Current funding cannot meet expenses.** FY23 is the first year that DHEC cannot fund 100 percent of the shortfall allowances (i.e., difference between contractor costs and tire revenue received from DOR, DHEC and

Continued on the following page

Waste Tire Grant Funding Since FY94

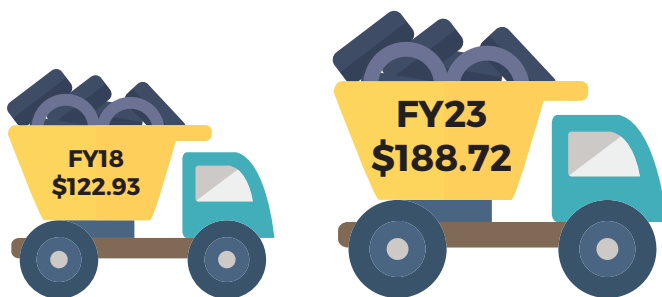


Grant funding provided by DHEC since FY94

Funding provided by DOR since FY94

Total funding provided since FY94

S.C. Average Cost for Hauling/Processing Waste Tires Per Ton



53.5 PERCENT INCREASE

Counties May Charge Fees for Specific Tires

Counties are permitted to charge tipping fees for:

- **Heavy equipment tires** from farming, logging and mining operations;
- **Tires generated outside of South Carolina;**
- **Fleet tires** on which there is no documentation that a fee has been paid; and
- **Unsold tires manufactured in South Carolina** on which no fee has been paid.

NOTE: Currently only 23 counties collect fees. See Table 3.3 on page 7 for additional information.

any tipping fees that county governments charge).

- **It is important to note the advance recycling fee on tires does not apply to new car purchases.**
- **DHEC and DOR are in discussions to look for possible improvements in reviewing tire credits claimed by new tire retailers to DOR.** In FY22, DOR reported that new tire retailers claimed about \$2 million in tire fee credits and about \$2.3 million in FY21 – the two-year equivalent of more than 4.2 million waste tires.
- **DHEC is increasing assistance to counties on how to correctly audit the ST-390 forms presented by waste tire haulers for new tire retailers.** The county should verify hauler registration, the ST-390 form and receipt of payment for each load of tires accepted. See Tire Fee Credits below for additional information.
- **New tires weigh more.** In May 2021, the Tire Industry Association (TIA) updated the average weight for passenger and light truck tires from 20 to 25 pounds. The new industry standard of 1 ton of waste tires now equals 80 tires – down from 89. The end result? It may cost more to manage waste tires.
- **Increased costs and less funding pose huge challenges for county budgets.** What will counties do if forced to adjust budgets and/or programs to manage waste tires? Will funding and/or services be eliminated from traditional recycling programs (e.g., aluminum/steel cans, cardboard) or difficult-to-manage items (e.g., electronics)? Several counties already are stockpiling waste tires as well as considering limiting collection services and disposal.
- **New property owners ask for funding to clean up tire piles** (e.g., someone buys property, discovers tires and asks the county and/or DHEC to pay for the cleanup).
- **Waste tire stockpiles continue to be an issue.** Since the program began, more than \$14.3 million has been allocated for stockpiles with nearly \$5.2 million spent on two major cleanups in FY19 and FY21 and about \$455,000 in FY17.
- **Will the Bipartisan Infrastructure Law be an opportunity for funding?** The objectives of this law are to minimize waste, advance pollution prevention, support markets for recycled products and promote a transition to a circular economy. TIA offers that both rubber-modified asphalt and tire-derived aggregate be included in achieving the legislation’s goals.

Tire Fee Credits Explained

- **The S.C. Solid Waste Policy and Management Act of 1991 (Section 44-60-170 (N)) places a \$2 fee** – called the Solid Waste Excise Tax by DOR – on the purchase of specific new tires (i.e., passenger car/truck, bus, motorcycle, tractor trailer).
- **New tire wholesalers or retailers may claim a \$1 credit on the ST-390 for every tire recycled through a DHEC-approved facility and not delivered to a county collection site.** The credit for the number of tires recycled cannot be more than the number of tires sold.
- **New tire wholesalers or retailers may not claim a \$1 credit if the tires are taken to a county collection center for free disposal.**



County Funding and Fees

These tables provide a historical review of funding collected through the \$2 advance recycling fee and provided to counties for the management of waste tires from FY94 to FY23. In addition, revenue collected by counties for specific tires is provided for the past FY.

Table 3.1 shows DHEC grant awards that provide funding for contractor costs, stockpile clean-ups, equipment (e.g., rolloff containers, concrete pads), public education and professional development. Since FY94, counties have received more than \$51 million in DHEC grants.

Table 3.2 reflects revenue provided by DOR to county governments for the management of waste tires. This revenue is determined by the county's percent of South Carolina's total population. Since FY94, counties have received more than \$59 million in DOR funds.

Table 3.3 provides the FY22 revenue collected by counties for specific tires. See the infographic on page 5 for more details.

TABLE 3.3: Reported Waste Tire Tipping Fees by County for FY22

COUNTY	AMOUNT COLLECTED
Abbeville	\$6,148.80
Aiken	\$7,129.00
Allendale	—
Anderson	\$14,399.00
Bamberg	\$898.50
Barnwell	\$700.00
Berkeley	\$50,493.00
Beaufort	—
Calhoun	—
Charleston	\$113,688.70
Cherokee	—
Chester	—
Chesterfield	\$14,259.50
Clarendon	\$30,272.00
Colleton	\$8,260.92
Darlington	\$27,570.00
Dillon	—
Dorchester	—
Edgefield	—
Fairfield	—
Florence	\$8,718.94
Georgetown	\$27,158.00
Greenville	\$96,927.00
Greenwood	\$447.00
Hampton	\$14,187.98
Horry SWA	\$101,746.00
Jasper	—
Kershaw	\$2,935.50
Lancaster	—
Laurens	—
Lee	—
Lexington	—
Marion	—
Marlboro	—
McCormick	—
Newberry	\$13,502.22
Oconee	\$14,795.57
Orangeburg	\$52,453.50
Pickens	—
Richland	\$46,465.50
Saluda	—
Spartanburg	\$51,651.50
Sumter	—
Union	—
Williamsburg	—
York	—
TOTAL	\$704,808.13

SOURCE: DOR
NOTE: Reporting comes from counties that receive DHEC grants.

TABLE 3.1: DHEC Grants Awarded to Counties from FY94 to FY23

FY	GRANT AMOUNT	FY	GRANT AMOUNT
2023	\$2,214,302.59	2008	\$3,392,499.00
2022	\$2,085,360.10	2007	\$1,927,022.00
2021	\$3,343,126.35	2006	\$1,873,945.00
2020	\$1,993,387.16	2005	\$2,361,754.38
2019	\$3,757,554.62	2004	\$1,905,403.00
2018	\$2,475,687.48	2003	\$2,097,225.00
2017	\$2,642,113.23	2002	\$2,058,421.00
2016	\$861,676.00	2001	\$4,114,790.45
2015	\$1,223,650.00	2000	\$2,072,428.00
2014	\$1,358,094.26	1999	\$1,798,080.00
2013	\$1,531,442.00	1998	\$2,039,633.00
2012	\$1,604,902.00	1997	\$3,831,262.00
2011	\$1,309,076.00	1996	\$2,234,272.00
2010	\$1,214,150.00	1995	\$1,750,557.00
2009	\$3,889,527.58	1994	\$2,017,880.00
TOTAL	\$51,109,802.90		

SOURCE: DHEC
NOTE: This funding does not reflect funding used for the cleanup of waste tire piles.

TABLE 3.2: DOR Funding Allocated to Counties from FY10 to FY22

FY	DOR ALLOCATION
2022	\$2,861,206.67
2021	\$2,716,886.03
2020	\$2,959,871.00
2019	\$2,165,301.60
2018	\$2,218,506.49
2017	\$2,012,792.74
2016	\$1,983,981.53
2015	\$1,831,687.69
2014	\$1,773,940.90
2013	\$1,640,714.08
2012	\$1,766,119.22
2011	\$1,822,674.97
2010	\$1,698,069.24
TOTAL	\$27,451,752.17

SOURCE: DOR
NOTE: DOR's total allocation of funds is more than \$59 million since FY94.

Waste Tire Markets



Waste tires are one of the nation's most recycled commodities.

About 76 percent of the waste tires generated nationwide were recycled into automotive products, mulch for landscaping, tire-derived fuel (TDF), rubber-modified asphalt (RMA) and other products according to the U.S. Tire Manufacturers Association's (USTMA) most recent (2019) report.

End-of-life markets, however, have become an issue. Here are some of the reasons:

- **Waste tires have a negative market value;**
- **Many current markets are not economically feasible and/or are limited by real or perceived barriers;**
- **Markets are not keeping pace with the annual generation of waste tires;**
- **Transporting, processing and recycling waste tires are expensive - and costs are rising; and**
- **The current largest end market - TDF - is declining according to some reports.**

While each of the market challenges outlined above is subject to discussion, most stakeholders agree that steps need to be taken

to grow existing and new markets.

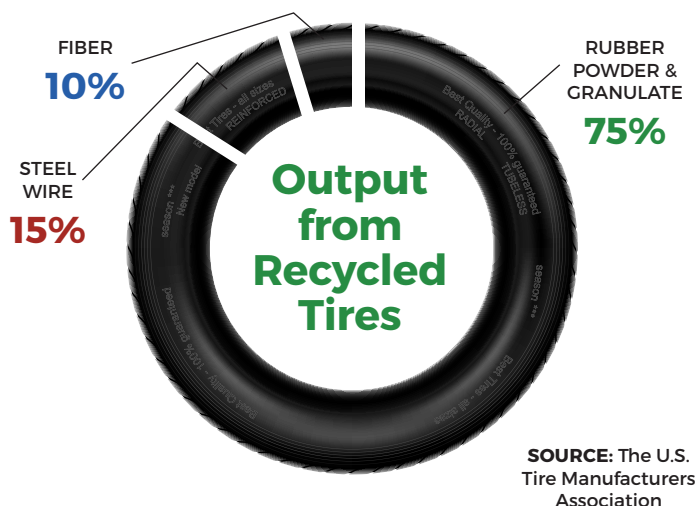
Most stakeholders also agree that waste tires offer significant end-use market opportunities in both energy and material recovery applications with new technologies being developed.

So what are the markets? The top three markets nationwide are TDF, ground rubber and civil engineering applications according to the USTMA's 2019 report. (See "National Markets" for additional information.)

National Markets

Here is a national breakdown of the top three markets from the USTMA's 2019 report.

- **TDF** was the largest end market for recycled waste tires accounting for 36.8 percent of the total market. TDF is created by reducing waste tires into rubber chips - usually 1 to 3 inches in size - that can be used as a viable alternative to fossil fuels and coal in cement kilns, pulp and paper mills and electric utility boilers.
- **Ground rubber** comprises 24.4 percent of the national market. It is produced by reducing waste tires into small granules. Reinforcing material (e.g., steel, fiber) are removed along with contaminants (e.g., glass, rock, dust). Ground rubber is used for new rubber products such as floor mats, railroad ties, portable speed bumps, vehicle mud guards as well as asphalt paving, playgrounds, sports fields and running tracks.
- **Civil engineering applications** made up 5.1 percent of the U.S. market. Waste tires are reduced into shreds of different sizes that can be used in drainage material applications (e.g., septic systems, landfill drainage) and permeable fill for infrastructure (e.g., embankments, bridge abutments).



Possible Solutions

The need to expand all economically viable and environmentally sound waste tire markets remains an imperative.

Both the USTMA and the Tire Industry Association (TIA) promote the use of rubber-modified asphalt. The TIA, in fact, sees the Bipartisan Infrastructure Law has a potential opportunity for funding RMA and tire-derived aggregate. In the letter sent to the Biden administration, the environmental and economic benefits of both products are highlighted.

Emerging technologies seemingly offer a bright future with the ultimate goal of a circular economy where material, products and services remain in circulation for as long as possible.

Pyrolysis and devulcanization, for example are helping advance the circular economy by converting waste tires into raw material that can be used in the manufacturing of new tires as well as other rubber and plastic products.

The U.S. Tire Manufacturers Association's goal is that all waste tires enter sustainable end-use markets.

USTMA members – which set a goal that all waste tires enter sustainable end markets – are investing in technologies to meet that goal.

They include:

- **Bridgestone** is working on turning end-of-life tires into new material including sustainable synthetic rubber that does not rely on petrochemicals;
- **Continental** reportedly began using recycled plastic (PET) bottles this year to make a polyester yarn to replace the virgin material previously used;
- **Michelin** has committed to have 100 percent of its new tires made from sustainable material by 2050; and
- **Liberty Tire Recycling**, the nation's largest waste tire recycler and a major processing market for South Carolina, produces recycled rubber for industrial feedstock for molded products, construction and civil engineering applications, tire-derived fuel and mulch for landscaping and playgrounds. The company announced in January 2022 that it will open new facility in Sanford, NC that will produce rubberized mulch.

Scrap Tire Market Development Study

Michigan released its study in January 2020 with the goal of finding the way to transition from managing waste to creating economic value for waste tires and ultimately a robust circular tire economy. The report provided recommendations including:

- **Increased use of RMA despite the multiple barriers by using grant funding to spur the adoption of RMA;**
- **Discourage grant requests for cleanup in cases where local governments can otherwise pursue such projects independently;**
- **Incrementally reduce cleanup grant disbursements and shifting funds to use toward market development; and**
- **Develop state and/or regional partnerships to improve the economies of scale.**

To view the study, visit michigan.gov/-/media/Project/Websites/egle/Documents/Programs/MMD/Scrap-Tires/2020-MARKET-STUDY.pdf.



South Carolina's Waste Tire Markets



South Carolina's 46 counties reported more than 40,000 tons of waste tires – the equivalent of more than 3.5 million tires – collected for recycling in fiscal year (FY) 2021 (July 1, 2020 to June 30, 2021).

That's more than 9,700 tires each day.

How are waste tires managed in South Carolina? End markets include:

- **Seven approved waste tire recycling and processing facilities** with three facilities in South Carolina, and two each in Georgia and North Carolina. Most of South Carolina's waste tires are processed at a North Carolina

facility (see Table 5.1 for additional information);

- **Seven facilities that are permitted to burn waste tires** (see Table 5.2); and
- **Forty registered waste tire haulers.**

It is important to note that South Carolina does not have any manufacturers that are using recycled waste tires as a raw material: and

South Carolina has a small tire retreading infrastructure that focuses on heavy equipment and industrial clients (including tractor trailer

Table 5.1: Approved S.C. Waste Tire Recycling and Processing Facilities

FACILITY	LOCATION
Argos Cement LLC	Harleyville, SC
Junk-A-Way Services LLC	Nuberg, GA
New River Tire Recycling LLC	Pilot Mountain, NC
Quality Tire Recycling LLC*	Jackson, GA
Ridge Recyclers*	Johnson, SC
S.C. Tire Processing LLC	Jackson, SC
U.S. Tire Recycling Inc.*	Concord, NC

NOTE: Approved as of April 15, 2022
*Part of Liberty Tire Recycling

SOURCE: DHEC

Table 5.2: S.C. Facilities Approved to Use Waste Tires as a Fuel Alternative

FACILITY	LOCATION
Ameresco Federal Solutions	Aiken, SC
Argos Cement, LLC	Harleyville, SC
Giant Cement	Harleyville, SC
Holcim (U.S.), Inc.	Holly Hill, SC
International Paper Georgetown	Georgetown, SC
New-Indy Catawba	Catawba, SC
Sylvamo-Eastover Mill	Eastover, SC

NOTE: Approved as of September 11, 2022
SOURCE: DHEC

South Carolina's Other Tire Story

Mention South Carolina and you think of palmetto trees, beautiful beaches, amazing weather, delicious seafood or barbecue and more. You should also think tires – particularly new tires.

South Carolina leads the nation in both the production – about 133,000 per day – and export sale of tires accounting for nearly 40 percent of the U.S. market share according to the S.C. Department of Commerce.

These tire manufacturers call South Carolina home: **Michelin; Bridgestone; Continental; Giti; and Trelleborg.**

tires), but not passenger tires. Remember, tractor trailer tires are one of the four types of tires that have the advance recycling fee. The state also has a robust used tire market – larger than most states according to one industry expert.

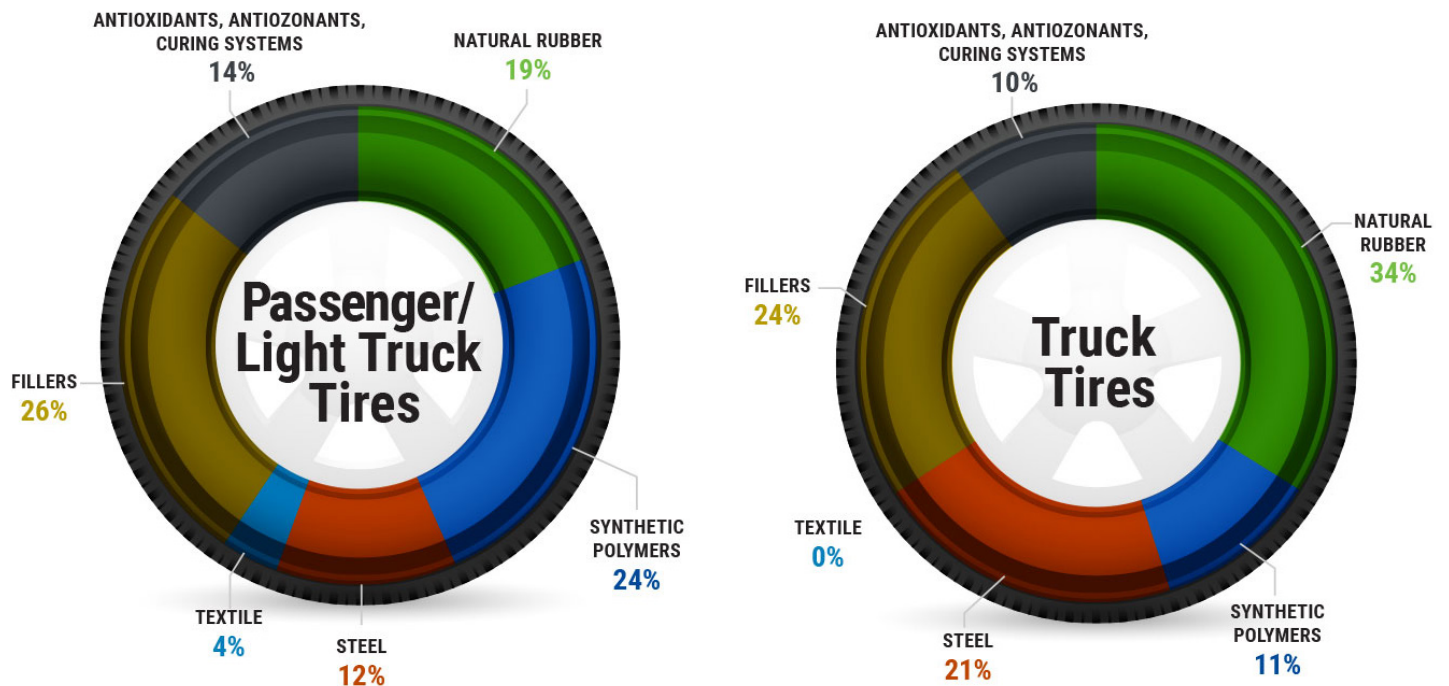
The S.C. Department of Commerce’s Recycling Market Development staff conducted a survey of waste tire processors in Spring 2021 that processed South Carolina-generated tires in FY20. The purpose of the survey was to learn how tires are used in recycling applications.

Six of seven processors responded to the survey. Here are key findings:

- **A reported 360,948.5 tons of tires were sent to South Carolina-registered processors in FY20.** These numbers are not exclusively South Carolina tires, but a snapshot of all the tires that these processors handled in FY20;
- **Of that amount, an estimated 22 percent (78,327.79 tons) were disposed of;**
- **An estimated 61 percent of the tires processed were turned into tire-derived fuel (TDF).** Other end-use markets were civil engineering applications (23 percent) and ground/crumb rubber for new products (14 percent).
- **The survey also showed that no ground/crumb rubber was used in rubber surface or asphalt end-market applications.**



Components of a Typical Passenger Automobile & Truck Tire



SOURCE: The U.S. Tire Manufacturers Association

For Your Consideration: Waste Tire Management Checklist



Here is an opening checklist of possible actions suggested by various stakeholders to address challenges currently facing South Carolina's waste tire management program.

- ❑ **Make stakeholders aware of the waste tire management issue.**
- ❑ **Ask stakeholders to assist in the development of a realistic plan to address key issues.**
 - **Waste Tire Committee** – Continue leadership role.
 - **S.C. Waste Tire Sustainability Coalition** – Bring work group back.
 - **S.C. Asphalt Pavement Association** – Open new discussions on opportunities.
 - **S.C. Department of Transportation** – Open new discussions on opportunities.
 - **S.C. Department of Commerce (DOC)** – Continue work on the development of recycling markets.
 - **S.C. Department of Revenue (DOR)** – Review advance recycling fee collection and distribution process.
 - **S.C. Department of Natural Resources** – Review process of illegal dumping enforcement and reporting.
 - **S.C. Department of Health and Environmental Control** – Improve coordination of response to illegal dumping and revise reporting data collected from haulers and processors.
 - **PalmettoPride** – Review process of litter control officers role and reporting.
 - **U.S. Tire Manufacturers Association** – Continue discussions on current and trending issues, research, best management practices and any potential funding.
 - **S.C. Tire Manufacturers** – DOC to contact and provide manufacturers realistic summary of current situation. If South Carolina is the national leader in tire manufacturing and exports, is potential disposal due to costs an option that will be accepted?
 - **Cement Kilns** – Determine any potential for increased use as a tire-derived fuel.
 - **County Governments** – Continue outreach on the financial situation and best management practices.
- **Tire Processors** – Look for ways to build infrastructure and increase competition.
- **Liberty Tire Recycling** – Consider partnership opportunities.
- ❑ **Tire retailers must be advised/reminded on the proper rebate as required by law.**
- ❑ **Address the \$2 fee and consider if it should be increased and/or changed.**
- ❑ **Address the Cap** – Currently \$150 per ton – on what local governments can charge for undocumented tires.
- ❑ **Encourage county local governments to charge a fee for the management of undocumented tires.**
- ❑ **Consider state-term contract for tire hauling with the goal of reducing costs.**
- ❑ **Explore infrastructure grant/funding opportunities** from both internal and external stakeholders and other sources including U.S. Environmental Protection Agency solid waste infrastructure grants.
- ❑ **Disposal** – If tire recovery becomes cost prohibitive, consider landfill disposal. It must be noted that county governments cannot use grant funding to pay for disposal costs, but can use funds received from DOR for disposal.
- ❑ **Advance Recycling Fee** – If tires can be disposed of, how is the advance recycling fee explained?
- ❑ **Paving** – Consider setting aside funding to encourage, supplement and implement paving opportunities.
- ❑ **Review reporting of waste tire processors to explore ways for improved data collection** (i.e., numbers collected, type, final disposition, end-of-life applications, export and more).
- ❑ **Consider a waste tire project manager to work with all internal stakeholders and track and coordinate all agency activities.**
- ❑ **Consider a permanent waste tire work group to track and coordinate all agency activities.**
- ❑ **Promote “See It, Report It” campaign** designed to reduce illegal dumping and other public outreach. Cleanup of illegal tire dumps has had a devastating effect on tire funds available.

Websites

S.C. Department of Health and Environmental Control (DHEC)..... scdhec.gov

DHEC's Office of Solid Waste Reduction and Recycling scdhec.gov/recycle

DHEC's Tire Recycling Website scdhec.gov/tires

PalmettoPride palmettopride.org

S.C. Department of Commerce (DOC)..... scommerce.com

DHEC's Bureau of Land and Waste Management

Bureau Chief..... **Henry Porter**

Assistant Bureau Chief.....**Juli Blalock**

Division of Mining and Solid Waste Management Director..... **Marty Lindler**

Editor.....**Richard Chesley**

Layout/Graphics.....**Gregg Glymph**

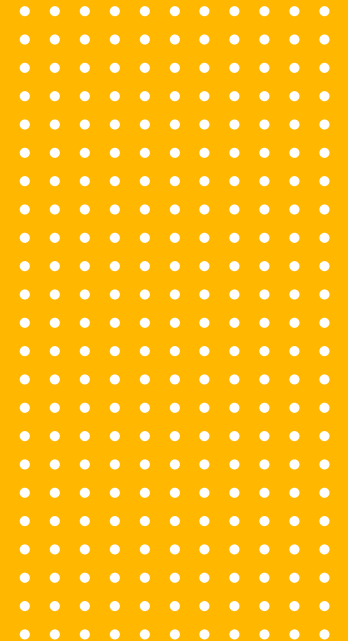
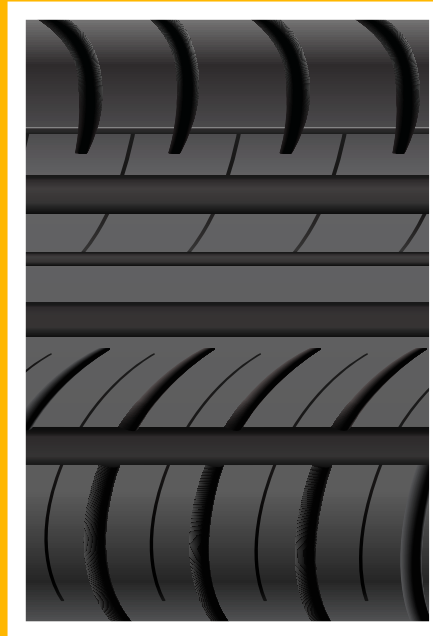
CONTRIBUTORS

DHEC**Woody Barnes, Alex Miller and Stefanie Vandiver**

DOC**Anna DeLage, April Chaffins and Ashley Jenkins**

PalmettoPride**Sarah Lyles**

Waste Tire Management at a Crossroads is published by DHEC's Office of Solid Waste Reduction and Recycling.



Printed on RECYCLED Paper
OR-2416 9/22



2022