



Colorado Department  
of Public Health  
and Environment

# Status of Waste Tire Recycling in Colorado

2010 Annual Report to the House  
Transportation Legislation Review Committee



# Executive Summary

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Calendar year 2010 marks the seventh year the Colorado Department of Public Health and Environment (the Department) has compiled data related to the number of waste tires collected at processing facilities and waste tire monofills in Colorado. We anticipate the tires stored in the monofills will be reused at a later date for tire-derived fuel; rubber crumb for roadways and molded rubber products, playgrounds, and sports fields; or for other uses. Therefore, placing tires in monofills for storage does not constitute final waste tire disposal. This conclusion is supported by information from the owners of the two largest waste tire monofills in Colorado: one intends to produce crumb rubber products, while the other will use the tires for tire-derived fuel. In addition, Senate Bill 09-289 requires that all Colorado waste tire monofills be eliminated by 2019.

This 2010 calendar year annual report on waste tire recycling in Colorado is being transmitted to the House Transportation Legislation Review Committee (the Committee) as required by House Bill 04-1428 and section 25-17-202.7, C.R.S. The statute

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*Placing tires in monofills for storage does not constitute final waste tire disposal.*

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requires the Department to issue a report to the Committee on or before July 1st each year that includes the total number of waste tires recycled in the state. This information is submitted to the Department pursuant to the Regulations Pertaining to Solid Waste Sites and Facilities (6 CCR 1007-2, Sections 8.4.1(B), 10.3.6, 10.5.7, 10.6.7 and 10.7.7).

The Department gathers this information through annual reporting from waste tire collection, recycling and storage facilities. To improve the data we receive, the Department continued outreach efforts to educate tire facilities regarding their compliance and reporting responsibilities.



## Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division Solid Waste and Materials Management Program



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**Statute:** Section 25-17-202.7, C.R.S.

**Date:** July 1, 2011

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# Waste Tire Update

Data submitted to the Department indicates there were 4,829,711 waste tires generated in the state of Colorado during calendar year 2010. Approximately 571,000 of the waste tires generated in Colorado were hauled to a recycling facility in Utah. Conversely, 293,771 waste tires were

shipped to Colorado waste tire facilities from out of state sources.

Colorado waste tire processors recycled a total of 4,485,777 tires in 2010, which amounts to 93 percent of the tires generated by Colorado sources that year. This figure

represents an increase from the 92 percent recycling rate achieved in 2009 (based on an estimate using 2008 data for one waste tire monofill) and an overall increase in the number of tires recycled. In 2010, the remaining 7 percent were stored at waste tire facilities that includes waste tire monofills and processing facilities.

The 93 percent recycling rate described in Figure 1 (top left) is based on waste tire processing facilities in Colorado and surrounding states processing waste tires that are generated in Colorado. However, these same waste tire processors only had the capacity to recycle 87.5 percent of the total influx of tires generated in-state and those sent to Colorado from states to the east and northeast.

Figure 2 (bottom left) provides an annual comparison of Colorado's waste tire recycling rates for the last seven years. The waste tire recycling rates remained relatively consistent each year until 2009 when the recycling rate moved up sharply to levels above 90 percent. This increase can be attributed to more accurate data collection methods, identification of an out of state recycler of Colorado tires, and an increase of use of tires as tire derived fuel.

Based on the reported number of waste tires received by waste tire facilities, about 4,829,711 waste tires were generated in Colorado during calendar year 2010. Considering Colorado's latest population estimate of 5,029,196 people, this rate of waste tires generated is slightly

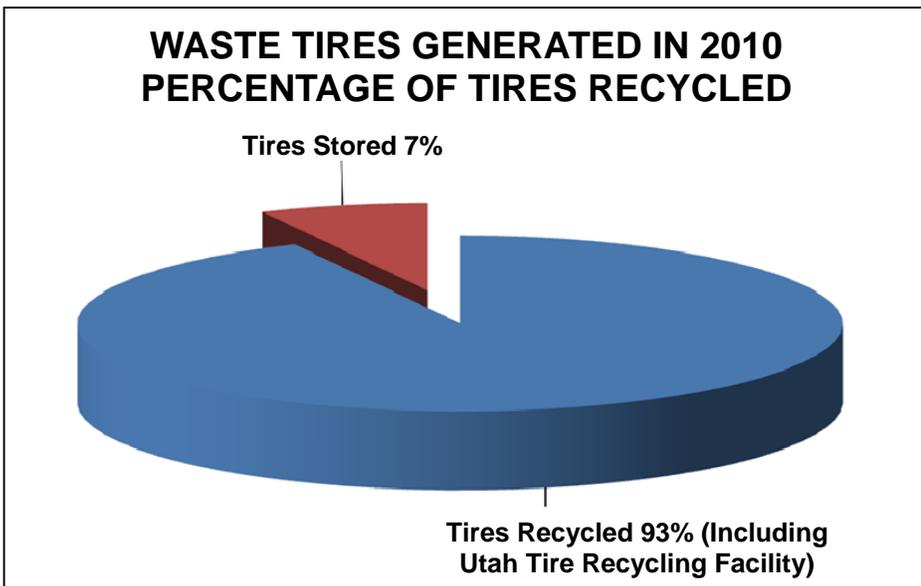


Figure 1



Figure 2

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# Waste Tire Update

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less than the accepted nationwide industry standard that predicts a waste tire generation rate of one waste tire/person/year.

Figure 3 (below) captures the top nine end use markets for waste tires recycled during calendar year 2010. Of the nine end use markets identified, the top five waste tire end use markets included burning waste tires as tire derived fuel, the use of tire shreds as the leachate drainage layer in private and government-owned sanitary landfills, the processing of waste tires into crumb rubber for use in roadways and molded rubber products, resale tires, and use of tire shreds as alternative

*The top five waste tire end use markets included burning waste tires as tire derived fuel, the use of tire shreds as the leachate drainage layer in private and government-owned sanitary landfills, the processing of waste tires into crumb rubber for use in roadways and molded rubber products, resale tires, and use of tire shreds as alternative daily cover at sanitary landfills.*

sale tires, and use of tire shreds as alternative daily cover at sanitary landfills.

Figure 4 (opposite top) reflects the number of waste tires

in storage at designated waste tire facilities statewide at the end of calendar year 2010. The on-site waste inventory increased by 519,484 tires during the year. As

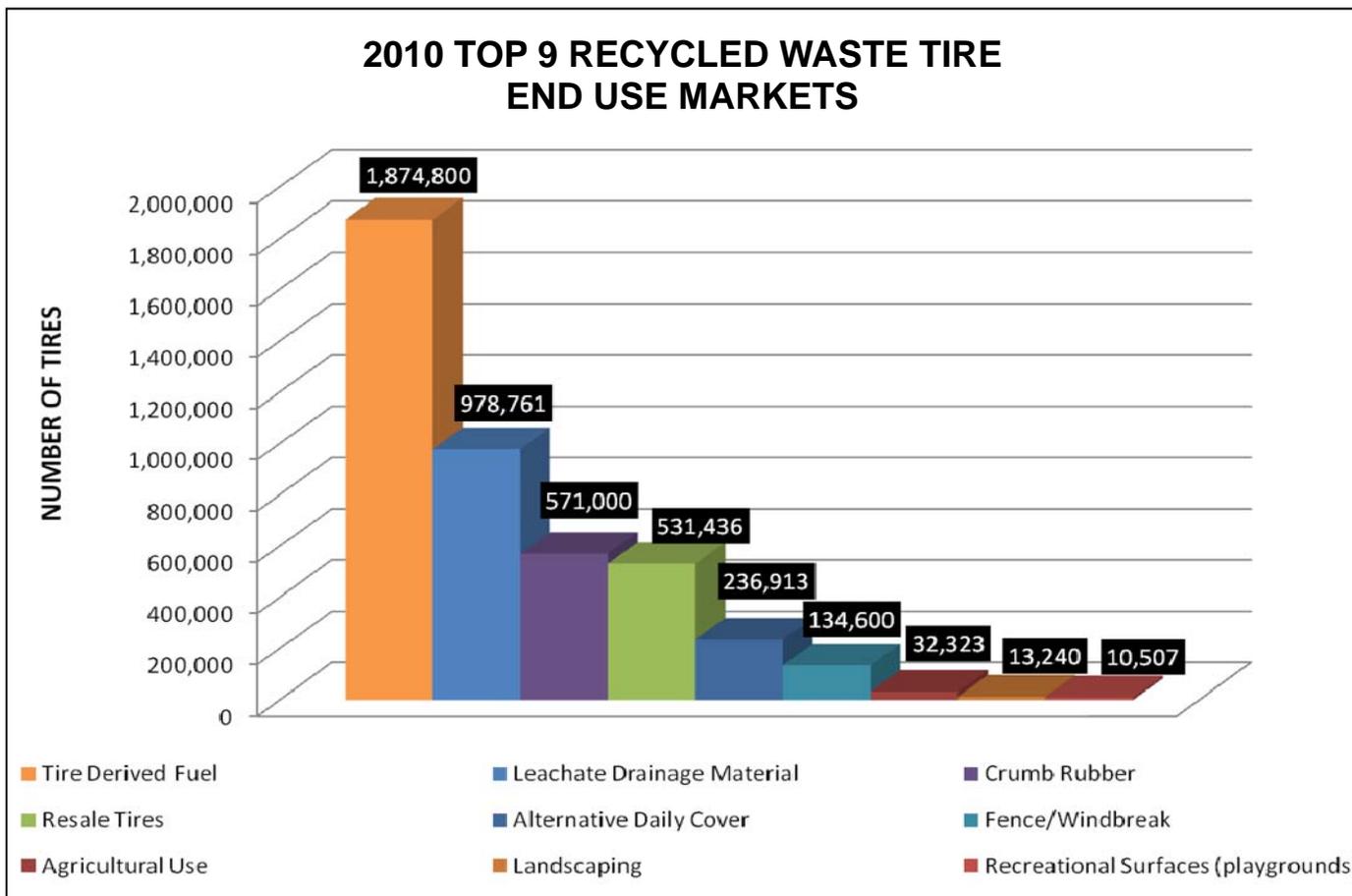


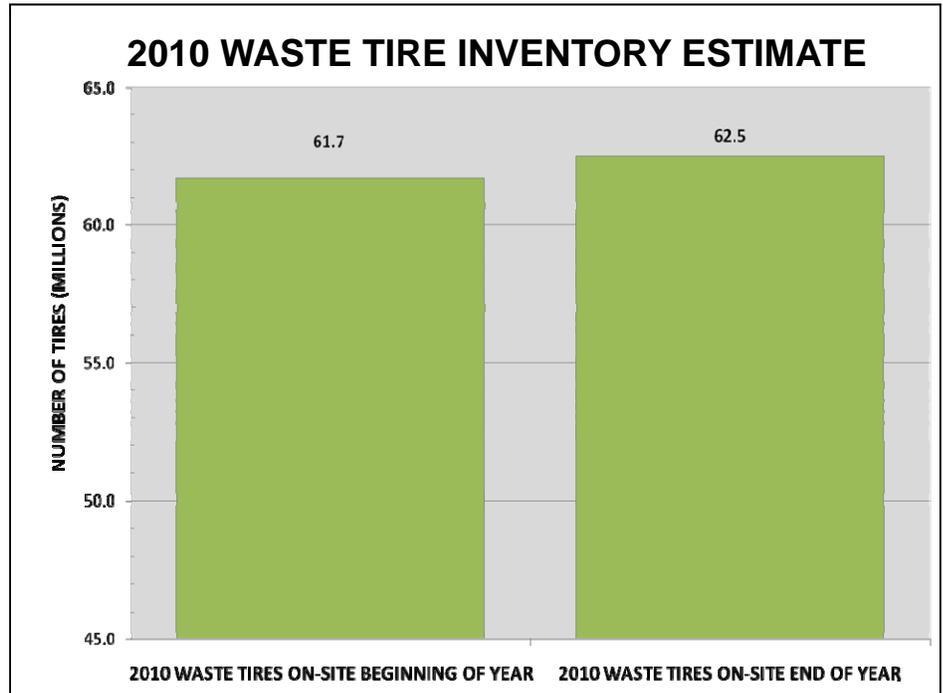
Figure 3

# Waste Tire Update

of 2010, 57,361,045 waste tires are stored in waste tire monofills while 4,832,830 waste tires are stored temporarily at waste tire processing facilities.

Some tire handling facilities in the state increased their storage inventories while awaiting further processing and development of end use markets. Other tire facilities decreased their storage inventory by shipping tires offsite for reuse in end use markets. Figure 5 (bottom) illustrates the amount of waste tires that are end used. In 2009, 4,182,329 tires went to final end use markets, based on an estimate using 2008 data for one waste tire monofill. In 2010, that figure

*Continued on next page...*



**Figure 4**



**Figure 5**

# Waste Tire Update

## Waste Tires: The Facts

Using waste tires as tire-derived fuel prevented the use of 63,620 tons of coal, or enough energy to power 9,912 homes for one year, and diverted 1,874,800 tires from monofill disposal.

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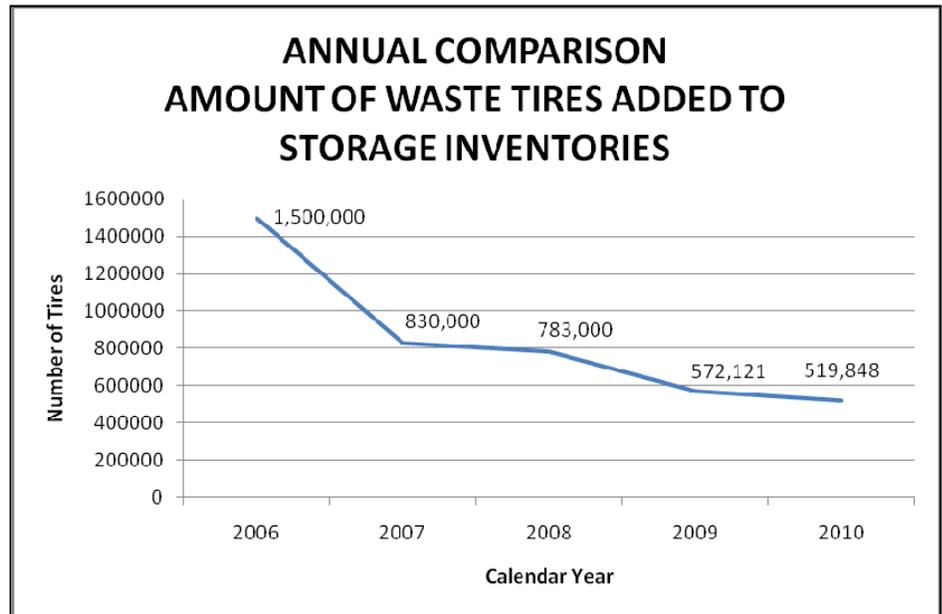
Approximately 280 million waste tires are produced each year by replacement of old tires on consumer cars.

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On average, one waste tire is generated for each Colorado resident each year.

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Improperly disposed tires can become a breeding ground for mosquitoes and rodents, potential carriers of disease.



**Figure 6**

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grew to 4,485,777, a 7.3 percent increase in the number of tires going to final end use markets. The number of tires going to end use markets increased by 9.5 percent in 2008 and by 2.5 percent in 2009. This increase represents a continuing trend of more waste tires going to end use markets in Colorado.

In contrast, as described in Figure 6 (above), we observed a

further decline in the number of waste tires added to waste tire storage inventories in 2010. During 2007, 830,000 waste tires entered the waste tire storage inventory, compared to 783,000 tires entering waste tire inventory in 2008 and another decline to 572,121 tires in 2009. The Department observed another decline in 2010 with only 519,848 waste tires entering waste tire storage inventories.



*House Bill 10-1018 requires waste tire haulers to register with the Department and the use of uniform manifests to track waste tire shipments from the generator to the waste tire destination facility.*

# Future Data Collection Methods

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The waste tire facility and waste tire hauler registration requirements of House Bill 10-1018 and the new Waste Tire Facilities and Waste Tire Haulers Regulations require all waste tire haulers and waste tire facilities, except for tire retailers, wholesalers and fleet service facilities, to submit an annual report to the Department.

The Department anticipates an increase in the number of waste tire facilities and haulers reporting for CY 2011. The Department will provide the necessary resources, including guidance and training, to assist facilities and haulers with the completion of the reporting form.

House Bill 10-1018 requires the use of uniform manifests to track waste tire shipments from the waste tire generator to the waste tire destination facility. During the waste tire regulations stakeholder process, Department staff worked with stakeholders and developed a Uniform Waste Tire Manifest (WT-2) that incorporates elements from a traditional cradle-to-grave process, similar to those used for hazardous waste, but allows the manifest to account for resale tires (re-use or salvage tires) that are removed during waste tire hauler pickups or consolidation. The Department plans on updating the 2011 waste tire hauler and waste tire facility reporting forms to achieve reporting consistency and accuracy between the reporting forms and the Uniform Waste Tire Manifest (WT-2), including having an area on the waste tire hauler form to report the number of resale tires (re-use or salvage tires).

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*The Department will provide the necessary resources, including guidance and training, to assist facilities and haulers with the completion of the reporting form.*

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The waste tire facility reporting form will be revised to include a requirement that all waste tire monofills submit a Waste Tire Inventory Reduction Plan that includes arrangements for the processing into tire-derived product at least 75 percent of the three-year rolling average amount of waste tires that the waste tire monofill accepted during the previous three calendar years.

The waste tire facility reporting form will also be revised to include a requirement that all waste tire processors and end users submit evidence establishing that during the previous calendar year the waste tire processor or end user processed or end used at least 75 percent of the waste tires accepted during the previous three years into tire derived product or into an end product.



*The Waste Tire Advisory Committee provides technical advice to the Department regarding specific waste tire issues such as waste tire disposal, storage, and transportation and waste tire related funding.*

# 2005-2010 Tire Legislation

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Two bills were passed during the 2005 legislative session that directly affected the management of waste tires in Colorado. The Waste Motor Vehicle Tire Hauler Act (HB 05-1126) requires the registration of commercial transporters of waste motor vehicle tires. The intent of this legislation is to ensure transportation and delivery of waste tires to proper storage and recycling facilities and to minimize the illegal dumping of tires.

Senate Bill 05-141 regulates the disposal of residentially generated waste tires. Effective July 1, 2007, this bill limits the disposal of residentially generated tires in landfills.

Senate Bill 09-289 was passed during the 2009 legislative session. Among other things this bill reallocated collection of the tire fee to the point of sale at tire retailers instead of the point of disposal, thereby improving the collection of the funds. This bill also required facilities to use only commercial tire haulers registered with the state to transport waste tires, required the state to develop a plan for the elimination of tire monofills within 10 years, and required the Department to implement an outreach and education program for facilities handling tires. The combined result of this bill is to ensure waste tires are commercially transported to appropriate facilities, and that more of these tires are ultimately recycled.

House Bill 10-1018 was passed during the 2010 legislative session and provides a cradle-to-grave or cradle-to-cradle-regulatory approach for waste tires. This bill specifies new regis-



tration, decal and manifest requirements for waste tire haulers and waste tire facilities. The bill also requires waste tire monofills to submit an inventory reduction plan to the Department as a part of the facility Certificate of Designation. House Bill 10-1018 places administrative authority for the waste tire funds with the Department, and allocates resources for new personnel to manage the fund and provide program enforcement.

New regulations went into effect April 1, 2011 to implement the requirements of HB10-1018 by setting up a cradle-to-grave management construct for waste tires to ensure that all

newly generated waste tires are accounted for and properly recycled or dispositioned. These new regulations set out the requirements for each type of facility or entity within the waste tire lifecycle — tire retailers and wholesalers that generated waste tires as they replace old tires with new tires on vehicles; waste tire haulers and waste tire collection facilities that manage waste tires in transit; waste tire processors and end users that either manufacture waste tires into new products or turn waste tires into useable feedstocks; and waste tire monofills that store waste tires for extended periods.