

Tire Recycling in Yukon under the Designated Materials Regulation

Introduction

The *Designated Materials Regulation* (DMR) was enacted in 2003 and sets a fee on the sale of certain “designated” products to cover the costs of recycling those products. Since 2003, the only designated material has been tires with a rim size of up to 24.5”A \$5 surcharge was collected to recycle these tires. These surcharges are kept in the Recycling Fund, and are used only for collection, transport and recycling of end-of-life tires.

The number of tires recycled each year depends on the number of new tires sold (creating a certain amount of available budget) and the number of tires disposed of, both of which are sensitive to changes in Yukon’s economy, weather and population.

Under the current fee structure only 400-500 tonnes can be recycled annually without subsidy. In the last ten years, an annual subsidy from General Revenue has been necessary to address the actual volume of tires collected. This has varied from \$250,000 to \$350,000, and been dependant on available funds.

Even with this subsidy, there is a backlog of tires under 24.5”accumulating in a number of Yukon landfills. Tire stockpiles in landfills are a major fire risk and public health risk, and take up landfill space, all of which are key concerns in managing our financial and environmental liabilities.

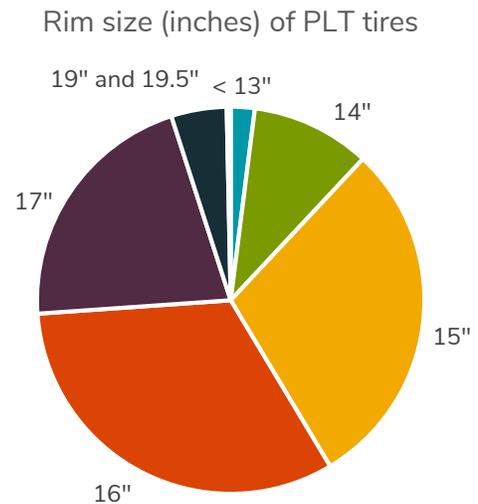
Estimates of tires sold in Yukon

Yukon government collects data on sales of tires with a rim size of 24.5” or less. The most recent five years of data are presented below.

Year	Tires sold in Yukon (rim size 24.5” or less)
Average 2004/05 to 2012/13	46,199
2013/14	50,464
2014/15	45,658
2015/16	43,424
2016/17	53,891
Average 2013/14 to 2016/17	48,359

This data is reported to Yukon government in total number of tires, and does not provide information about the exact sizes or categories of the tires under 24.5” rim size. However an [audit](#) completed in 2013 in Manitoba provides a breakdown by rim size of PLT tires collected. This breakdown is presented in the table below.

Rim size (inch)	Percentage of PLT tires sold in MB
12	0.1%
13	1.8%
14	10.0%
15	29.5%
16	32.5%
17	21.2%
18	4.6%
19	0.2%
19.5	0.1%
Subtotal	100%



This audit shows that 95% of PLT tires are 17” or less and 5% are greater than 17” and up to and including 19.5”. Based on this, 17” was chosen as an appropriate threshold between Small and Medium categories. It is recognized that rim size of tires has been shifting in recent years (to a lower profile design), and this may no longer be an appropriate threshold.

Manitoba’s [Tire Stewardship Program Plan](#) forecasted that total tire sales (units) for 2013 would be approximately 1,000,000 of which the PLT category, summarized above, represented approximately 90% or 900,000 units. Non-PLT tires make up the remaining 10% of new tires sold.

Therefore, of the total 1,000,000 tires sold in Manitoba, 85.5% (95% x 900,000 PLTs / 1,000,000 tires) are less than 17”. The remaining 14.5% are composed of 10% non-PLT tires, plus 4.5% (5% of 90%) PLTs that are larger than 17”.

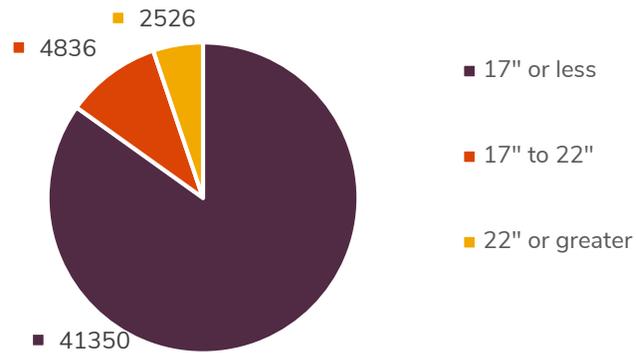
Based on this breakdown, the estimated number of tires sold in each of Yukon government's proposed categories is:

Fiscal Year Range	Tire Sales + 350*	Estimated Number of Tires Sold by Category		
		17” or less (85.5% of total)	17” to 22” (10% of total)	22” or greater (4.5% of total + 350*)
Average 2004/05 to 2012/13	46,549	39,500	4,620	2,429
Average 2013/14 to 2016/17	48,709	41,347	4,836	2,526

*Note, the average number of tires sold do not include tires above a 24.5” rim size. Based on data from other jurisdictions, it is assumed that there are approximately 350 tires sold in this category.

The breakdown of the estimated number of tires in each of the categories proposed by Yukon Government is also displayed in the chart below.

Estimated Number of Tires in Each of the Categories Proposed by Yukon Government



Tires greater than 24.5" rim size diameter

The Yukon government does not collect data for sales of tires greater than 24.5" rim size diameter. These tires are likely mostly Off-The-Road (OTR) tires associated with mining, construction, and recreational activity, followed by a limited number of Speciality/Industrial and Agricultural tires.

The data from Manitoba suggests that these larger tires make up 10% of the total number of tires sold. While Manitoba data is likely completely representative of Yukon's sales situation, it can serve as an approximation for the purposes for this discussion.

Projected Program Revenue

Using the sales by category above, the table below presents the projected program revenue by category.

Value	Tire Sales	17" or less (\$7 fee)	17" to 22" (\$15 fee)	22" or greater (\$50 fee)	Total
2004/05 to 2012/13 average	46,549	39,500	4,620	2,429	
2013/14 to 2016/17 average	48,709	41,350	4,836	2,526	
Revenue (\$)		289,450	72,540	126,300	488,290

Costs of tire recycling in Yukon

Recycling of tires is charged per tonne of end-of-life tires by transportation companies and tire processing facilities. A public tender for collection, transportation and processing of tires is issued every three years (or more frequently) and the lowest-cost bid wins the contract.

In the past, the successful bid has involved a partnership between a Yukon transportation company and an Alberta-based processor. However, this process does not preclude working with processors in other jurisdictions.

Yukon government recycles between 500-1,000 tonnes of tires per year, collected from solid waste facilities throughout Yukon. The table below presents the number of tonnes of tires recycled, and the cost per tonne, for the last five years.

Year	# of tonnes of tires recycled	Average cost to recycle (\$/tonne)
2013/14	546	\$452
2014/15	258	\$870
2015/16	1,081	\$535
2016/17	796	\$645

In 2016/17, recycling 796 tonnes of tires at \$645/tonnes cost \$513,420. **Yukon government should be recycling 700 to 800 tonnes per year to prevent the backlog of tires from growing larger.**

The cost of recycling tires involves a charge for collection, transportation, and a processing fee that is set by the tire processing facilities.

Year	Collection and Transportation	Processing fee	Total cost
2016/17	\$410/tonne	\$235/tonne	\$645/tonne
2017/18	\$600-\$900/tonne (differs by community)	\$315/tonne	\$1,000/tonne (average, based on estimation of shipping costs)

Canadian Association of Tire Recycling Agencies (CATRA) provided the Yukon government an estimation of mean tire weights in each category. Yukon government used the mean weights and the cost of recycling (\$/tonne) to calculate the estimated cost of recycling per tire in each proposed category.

Yukon category	Alberta equivalent used for the purposes of weight estimates	Mean weight	Cost to recycle per tire based on 2016/17 costs (\$645/tonne)	Cost to recycle per tire based on 2017/18 costs (\$1,000/ tonne)
17" and smaller	Passenger Tires 17" or smaller	22.23lbs (10kg, 0.010 tonnes)	\$6.45	\$10.00
18-22"	Light truck tires 17-19.5"	39.49lbs (18kg, 0.018 tonnes)	\$11.61	\$18.00
Greater than 22"	Medium truck, bus, large recreation vehicle and highway trailer tires greater than 19.5"	130lbs (60kg, 0.060 tonnes)	\$38.70	\$60.00

Concerns have been raised regarding the cost of ice/gravel/snow that is mixed with tires. Yukon government is investigating options to reduce recycling costs. There may be an option to store tires in trailers prior to transport, however the cost to use trailers must be compared against current program costs.

Analysis

Presented below is a comparison between Yukon Government's proposed surcharges and categories, and Alberta's surcharges and categories for discussion. The estimated number of tires that can be recycled below based on collected surcharges is calculated using the 2016/17 costs (\$645/tonne).

Alberta categories and surcharges

	Alberta surcharge	Estimated # of tires sold in Yukon	Estimated Revenue
PLT, specialty, industrial, recreational	\$4.00	38,663	\$154,800
MT	\$9.00	9,466	\$84,150
Small off-road (8" to 24")	\$40.00	190	\$6,000
Medium off-road (24" to 33")	\$100.00	104	\$9,000
Large off-road (33" to 39")	\$200.00	52	\$10,000
Sum		48,475 ^a	\$263,950
# of tonnes of tires that could be recycled @ \$645/tonne			409 tonnes
Net after recycling 700 tonnes of tires			-\$187,550
Net after recycling 800 tonnes of tires			-\$252,050

Yukon 2016 regulation categories and surcharges

	Proposed surcharge	Estimated # of tires sold in Yukon	Estimated Revenue
17" or less	\$7.00	41,350	\$289,450
17" to 22"	\$15.00	4,836	\$72,540
Greater than 22"	\$50.00	2,526	\$126,300
Sum		48,709	\$488,290
# of tonnes of tires that could be recycled @ \$645/tonne			757 tonnes
Net after recycling 700 tonnes of tires			\$36,769
Net after recycling 800 tonnes of tires			-\$27,710

Conclusion

The annual cost to recycle tires in Yukon has varied since the commencement of this program. Recycling processing fees, shipping costs, available budgets and volumes of tires collected all vary each year.

Yukon Government's proposed categories and surcharges nearly achieves cost recovery. By comparison, the Alberta categories and surcharges results in approximately 50% cost recovery.

^a The total number of tires in the program using Alberta categories is slightly smaller than the total number of tires using the Yukon categories because Agricultural tires are exempt in the Alberta program.