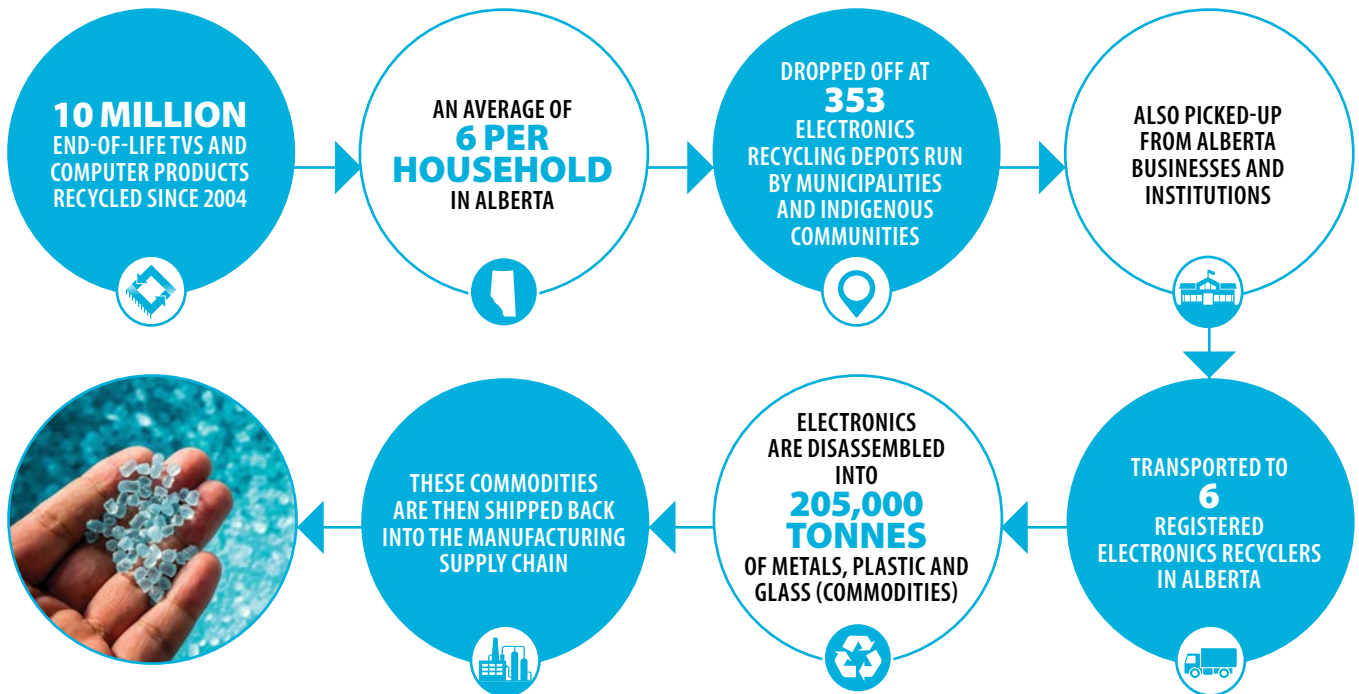




ELECTRONICS RECYCLING

2019-20 PROGRESS REPORT

Alberta
recycling
MANAGEMENT AUTHORITY



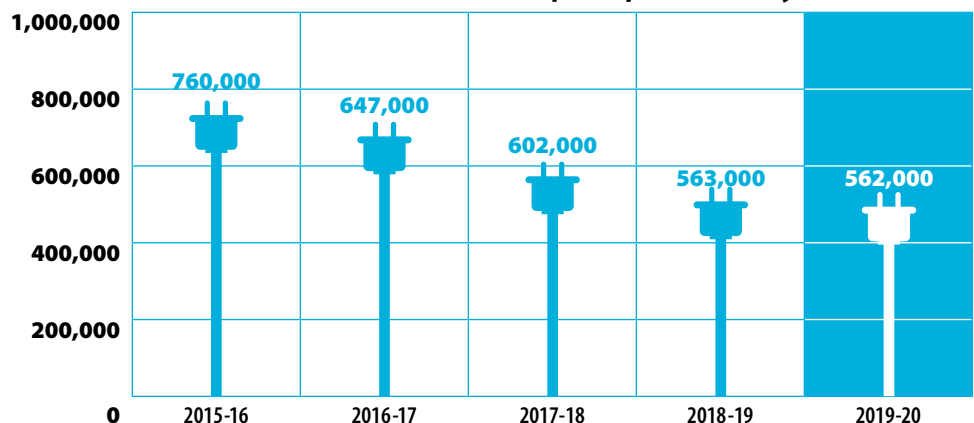
MAKING RECYCLING MORE CONVENIENT

96% of the population live no further than a 20-minute drive from an electronics recycling depot

RECYCLING RESULTS

This chart displays results over the last five years. The amount recycled this year indicates a stabilization in processing volumes, following a period of declining volumes, resulting from a gradual recovery in the Alberta economy.

Number of TVs and computer products recycled



ELECTRONICS EXPANDED

KEEPING EVEN MORE ELECTRONICS OUT OF THE LANDFILL

This year the Government of Alberta approved a two-year electronics pilot project which could see an additional **24,600 tonnes** of electronics diverted from landfills. This pilot also has the potential to inject **\$30 million** GVA annually into Alberta's economy and create **360 additional full-time jobs** in the recycling sector.



ENVIRONMENTAL FEES AT WORK

The environmental fees that Albertans pay when buying new electronics are used to help fund the collection and recycling of this material along with other Program-related costs. There are **1,440 electronics producers and suppliers** registered with ARMA who collect these fees on the sale of each eligible product sold in Alberta and remit the funds to ARMA. We value their commitment and diligence as part of the frontline of the electronics recycling program.

	TVS, MONITORS & ALL-IN-ONE COMPUTERS LESS THAN 30 INCHES	\$4.00
	TVS, MONITORS & ALL-IN-ONE COMPUTERS 30 INCHES OR LARGER	\$10.00
	COMPUTERS AND SERVERS	\$4.40
	LAPTOP, NOTEBOOK AND TABLET COMPUTERS	\$1.20
	PRINTERS, SCANNERS, PHOTOCOPIERS, FAX MACHINES	\$4.80

How the fees are used

Recycling Expenditures

81%

Collection and recycling of electronics

Recycling Development

3%

R&D; Program awareness

Program Delivery Expenditures

7%

Costs to deliver the program

Corporate Administration

9%

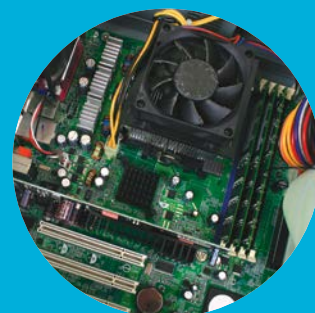
Corporate costs

ALBERTANS SUPPORT THE ELECTRONICS RECYCLING PROGRAM

Albertans are regularly polled to measure their support for the program and over the past five years, commitment to electronics recycling has remained strong.

Annual survey results

Date	Program Support
2015	91%
2016	89%
2017	86%
2018	89%
2019	85%



HARD-TO-GET ELECTRONICS PILOT PROJECT

What began as a pilot project involving one school district in 2015, evolved to include the participation of **over 200 schools** collecting end-of-life electronics to raise funds for their individual schools. This is now an ongoing grant program which expanded to include community leagues/associations, amateur sports associations/teams, Scouts, Girl Guides and businesses for charity fundraising events.



217
SCHOOLS



107,519
STUDENTS



\$52,100
AWARDED TO
SCHOOLS

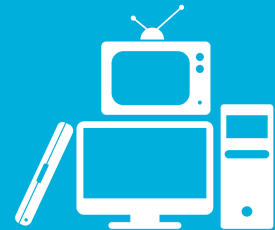


12,722
TV AND COMPUTER
PRODUCTS COLLECTED



CURBSIDE COLLECTION

A separate component of the Hard-to-Get pilot, the curbside collection pilot ran for a 5th year involving three municipalities. Once again residents were invited to leave their TVs and computer products at the curb. Over the course of five years there were a total of **2,621 items collected**. This pilot will continue to be tested in 2020-21; please visit our Success Stories page at albertarecyclingreports.ca/2019 to read about an amazing curbside event held by the Town of Olds; residents dug out from their basements and garages not only electronics but paint, tires and used oil materials for recycling.



**2,621 TVs AND
COMPUTERS**
COLLECTED THROUGH THE CURBSIDE PILOT

HOW 10 MILLION ELECTRONICS ARE RECYCLED

Registered Recyclers pick up TVs and computer products from businesses and institutions and from **353 recycling depots** across the province. They transport the material back to their facilities (all located in Alberta) where they break down each item, separating the materials into metals, plastic and glass. These commodities are then shipped back into the manufacturing supply chain. Following are results from the past three years, revealing a year-over-year decrease in glass and plastic which could be indicative of a decrease in cathode-ray-tube TVs and monitors available for recycling.



2017-18 RESULTS = **11,992 TONNES**



2018-19 RESULTS = **10,111 TONNES**



2019-20 RESULTS = **10,776 TONNES**



*Includes batteries, toner, ink, wire, cables, wood.

KEEPING HAZARDOUS SUBSTANCES OUT OF THE LANDFILL

Since 2004, **13,670 tonnes** of hazardous material has been safely and properly handled during the recycling process. Following are results from the past three years showing some of the substances of concern diverted from the landfill.

Material	2017-18	2018-19	2019-20
 Lead (tonnes) Circuit boards, cathode ray tubes, TVs, monitors, CPUs, laptops, and printers.	295	279	285
 Mercury (kg.) Batteries - general; mercury lamp batteries and switches; laptops	0.31	0.28	0.31
 Cadmium (kg.) Circuit boards, cathode ray tubes, insulated wire, TVs, monitors and CPUs	4.31	4.08	3.87
 Beryllium (kg.) Circuit boards, TVs and monitors	12.60	11.90	12.10
 Antimony (tonnes) Circuit boards, CPUs, laptops, and printers	1.41	1.32	1.26



DATA SECURITY IS TOP PRIORITY

Once a computer is collected by a registered Recycler, they are responsible to destroy the hard drive (example pictured above) and other storage media. The Recyclers can also provide Certificates of Destruction if requested.



ENVIRONMENTAL STANDARDS FOR RECYCLERS

An objective of the Electronics Program is to ensure the registered Recyclers operate in an environmentally and socially responsible manner. Annual environmental audits by external experts are conducted to confirm if the Recyclers are following Program requirements. Results are reported annually in a "Compliance Assurance Summary Report" found at albertarecycling.ca



ARMA oversees end-of-life processing of tires, electronics, paint and used oil materials on behalf of the province. Since 1992, ARMA has worked with a broad spectrum of stakeholders to shape recycling policy, create a value-added processing system, minimize waste entering landfills and to act as collective stewards of Alberta's environment.

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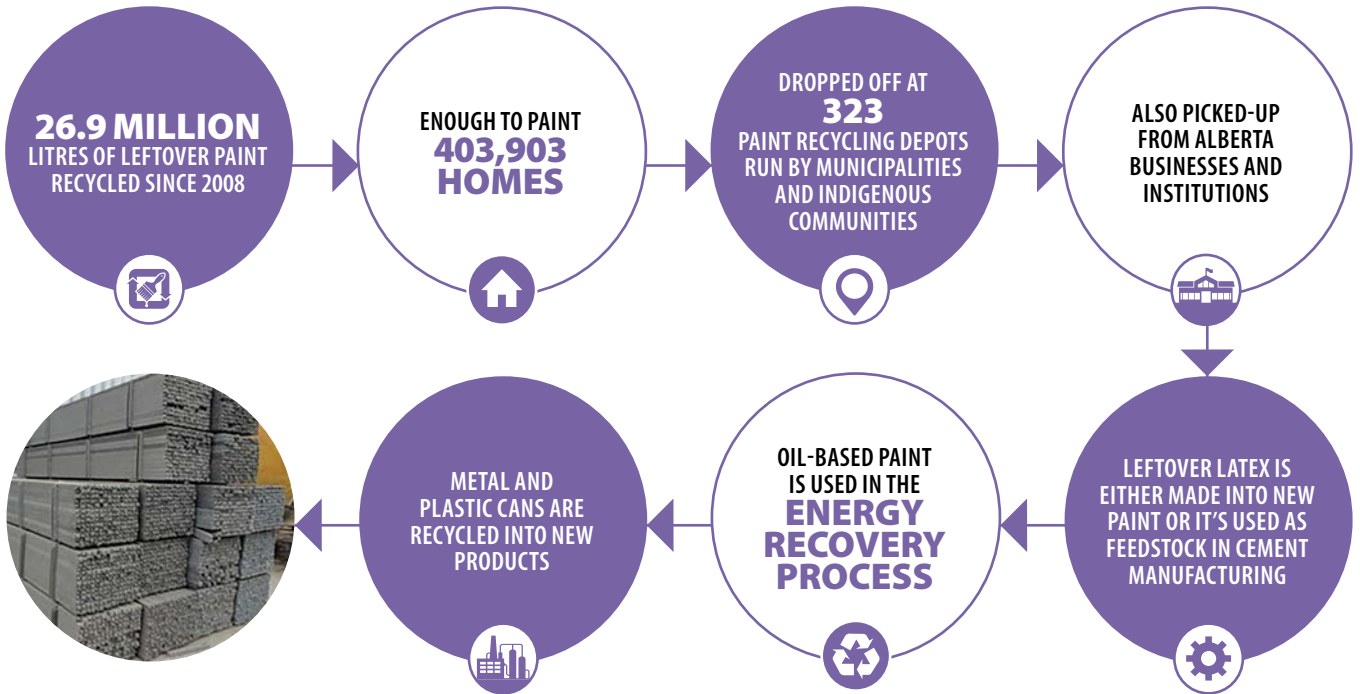
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PAINT RECYCLING

2019-20 PROGRESS REPORT



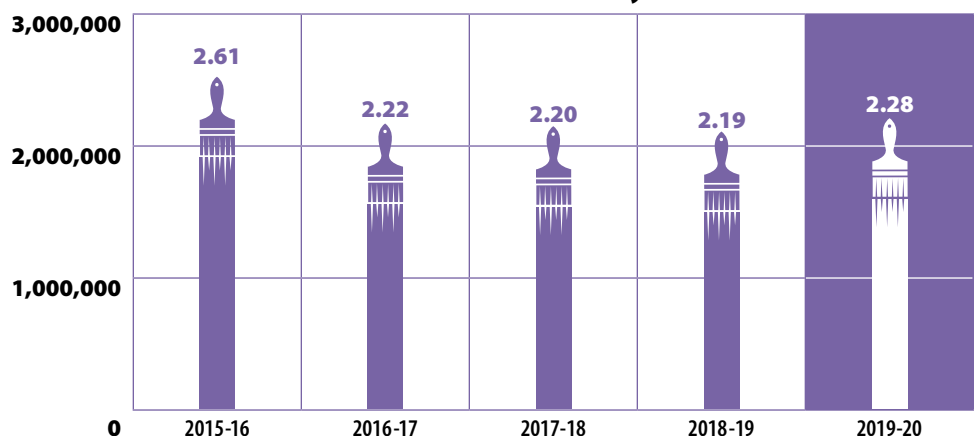
MAKING RECYCLING MORE CONVENIENT

93% of the population live no further than a 20-minute drive from a paint recycling depot

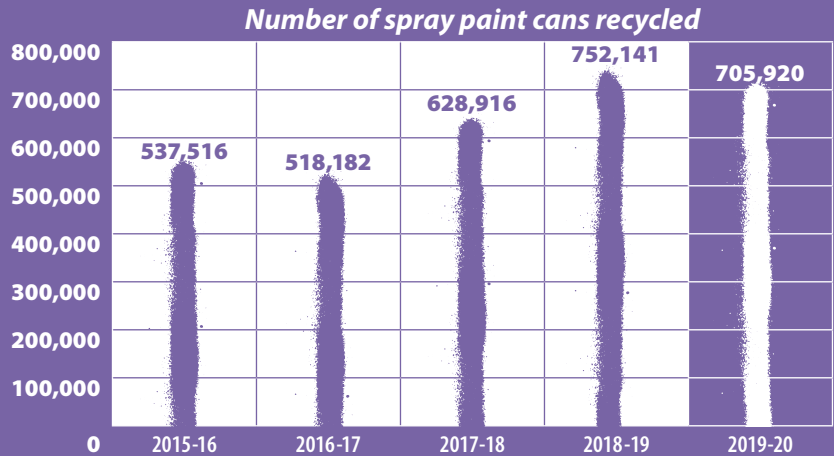
RECYCLING RESULTS

This chart presents results over the last five years. 2019-20 shows an increase of 4.6% processed over the prior year, indicating an increase in sales resulting from a gradual recovery in the economy (an increase in paint purchases results in an increased amount of paint discarded).

Litres of Paint Recycled



This chart presents results over the last five years. While the number of cans processed decreased by **6.5% over 2018-19, the amount in 2019-20** remains higher than previous years. A combination of factors could contribute to this result: this was the fourth year for commercial paint roundups, enabling businesses to drop off unlimited amounts of eligible paint products for recycling plus an additional Recycler was approved in 2018-19.



ENVIRONMENTAL FEES AT WORK

The environmental fees that Albertans pay when buying new paint products are used to help fund the collection and recycling of this material along with other Program-related costs. There are **513 paint producers and suppliers** registered with ARMA who collect these fees on the sale of each eligible product sold in Alberta and remit the funds to ARMA. We value their commitment and diligence as part of the frontline of the paint recycling program.

	100ml to 250ml	\$0.10
	251ml to 1L	\$0.25
	1.01L to 5L	\$0.75
	5.01L to 23L	\$2.00
	Spray paint Cans (any size)	\$0.10

How the fees are used

Recycling Expenditures

86%

Collection and recycling of paint and containers

Recycling Development

1%

R&D; Program awareness

Program Delivery Expenditures

7%

Costs to deliver the program

Corporate Administration

6%

Corporate costs

ALBERTANS SUPPORT THE PAINT RECYCLING PROGRAM

Albertans are regularly polled to measure their support for the program and over the past five years, commitment to paint recycling has remained strong.

Annual survey results

Date	Program Support
2015	89%
2016	86%
2017	84%
2018	82%
2019	82%



HELPING ALBERTA BUSINESSES RECYCLE THEIR PAINT

Commercial paint roundups have become firmly established events in Edmonton and Calgary with monthly roundups running from April – November. This year Red Deer began holding events, combining them with used oil material collection which has proved popular for residents and businesses alike.



RECYCLING OF EMPTY METAL & PLASTIC PAINT CANS

Metal paint cans and plastic pails are an equally important part of the Paint Recycling Program as the environmental fees paid at the time of purchase help fund the collection and recycling of these materials.

The plastic pails collected by paint Recyclers are shipped to an approved processor in southern Alberta and recycled into composite lumber, fence posts and parking curbs.

The metal cans are recycled into industrial products such as rebar.



ENVIRONMENTAL STANDARDS FOR RECYCLERS

An objective of the Paint Program is to ensure leftover paint and containers are collected and shipped by the registered recyclers to downstream processors in an environmentally and socially responsible manner. Regular inspections by Alberta Recycling and an environmental audit by external experts every three years confirm if the Recyclers are following the requirements of the Program.





WHAT HAPPENS TO YOUR LEFTOVER PAINT



Registered Recyclers pick up leftover or unused paint and containers from 323 paint recycling depots and roundups as well as from businesses and institutions.



Oil-based paint is bulked and shipped to approved downstream processors to be used in the energy recovery process.



Latex paint is delivered to an approved recycler in Alberta for processing into new paint or, if the latex is solid or semi-solid, it is used as feedstock in cement manufacturing.

ARMA oversees end-of-life processing of tires, electronics, paint and used oil materials on behalf of the province. Since 1992, ARMA has worked with a broad spectrum of stakeholders to shape recycling policy, create a value-added processing system, minimize waste entering landfills and to act as collective stewards of Alberta's environment.

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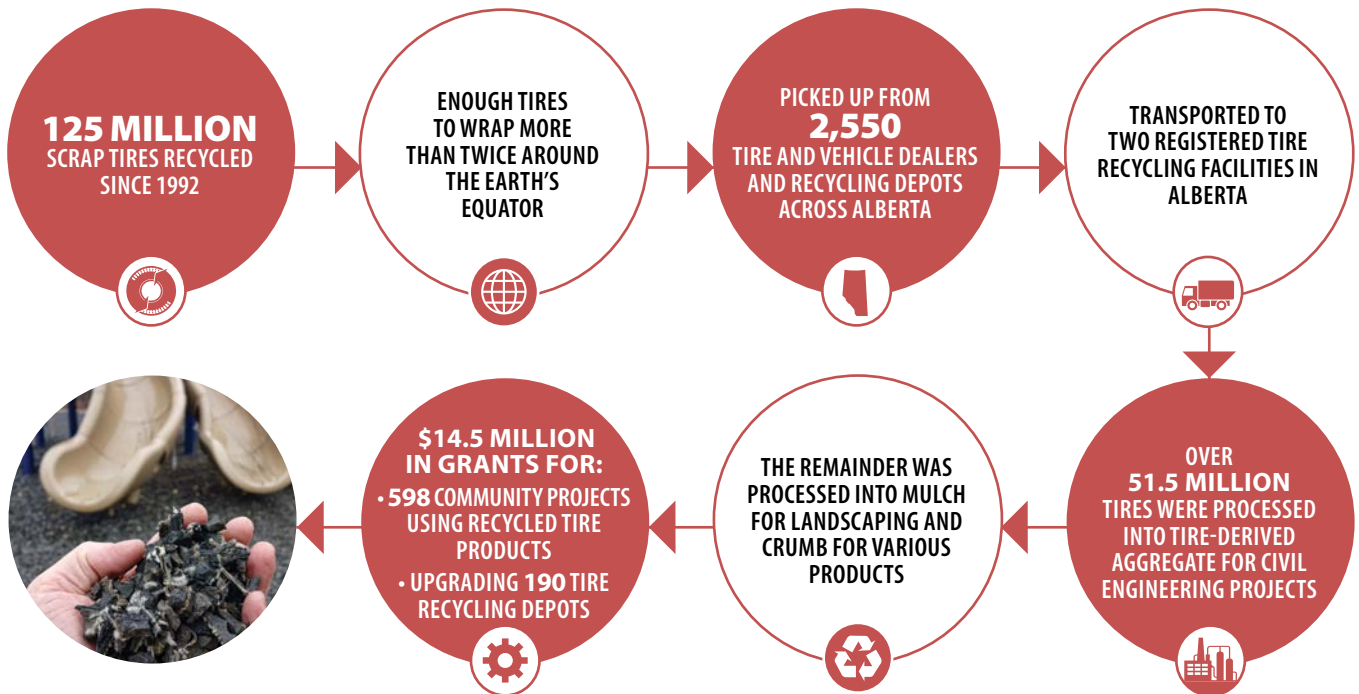


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TIRE RECYCLING

2019-20 PROGRESS REPORT



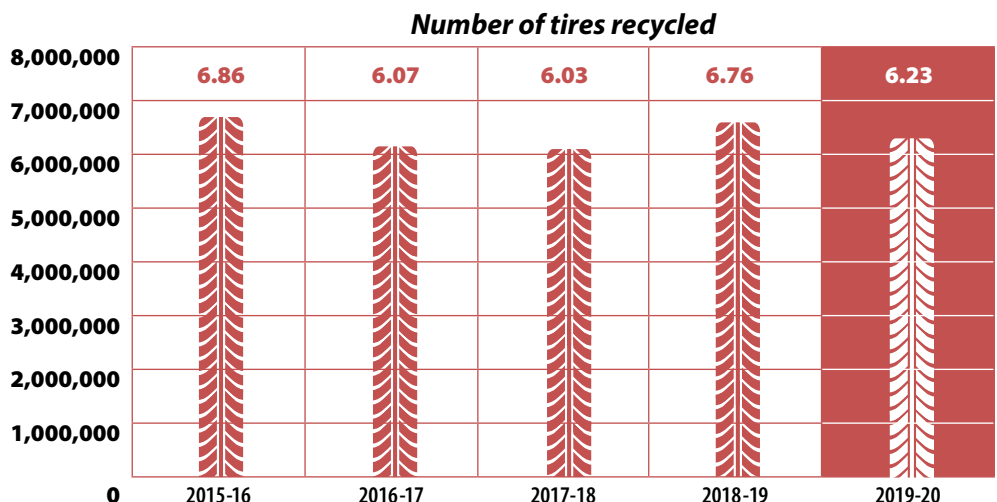
TIRE SUPPLIERS' RECYCLING ROLE

When Albertans get new tires, they usually leave their old ones behind. They can because **2,200 vehicle and tire dealers** and auto repair shops play a dual role – selling new tires and making sure the old scrap tires you leave behind are collected for recycling at Alberta facilities.

RECYCLING RESULTS

This chart presents results over the last five years.

This year there was a **7.8% decrease** over the previous year, mainly due to a reduction in the cyclical demand for tire-derived aggregate in landfill projects.



ALBERTANS ARE GETTING GREAT MILEAGE FROM THEIR TIRE RECYCLING PROGRAM WITH **\$14.5 MILLION IN GRANTS**



Across the province you will find recycled tire products in **598 Municipal Demonstration Grant Projects** such as playgrounds, arenas, outdoor fitness areas and walking trails.

Additionally **190 Indigenous communities and municipalities** have received funding to upgrade their tire collection areas located at landfills and transfer stations.



ENVIRONMENTAL STANDARDS FOR RECYCLERS

A goal of the Tire Program is to ensure all scrap tires are collected and processed by registered Recyclers in an environmentally and socially responsible manner. Monthly inspections by Alberta Recycling and an environmental audit by external experts every three years, confirm if the Recyclers are following the requirements of the Program.

ALBERTANS SUPPORT THE TIRE RECYCLING PROGRAM

Albertans are regularly polled to measure their support for the program. While percentages have dipped by 7% over the last five years, the most recent result of 83% is still a strong showing of support.

Annual survey results

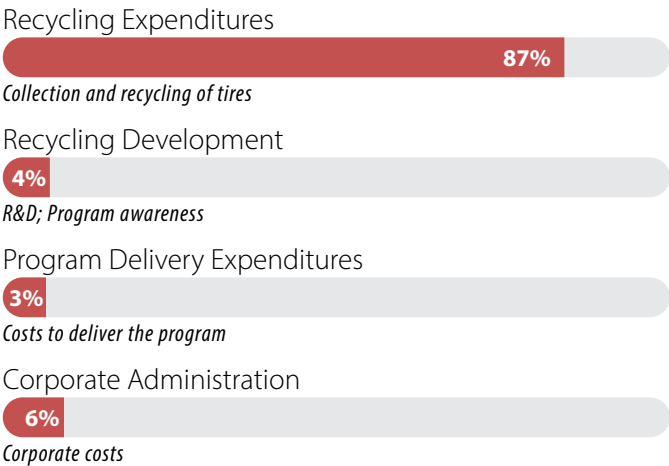
Date	Program Support
2015	90%
2016	86%
2017	87%
2018	83%
2019	83%

ENVIRONMENTAL FEES AT WORK

The environmental fees that Albertans pay when buying new tires are used to help fund the collection and recycling of this material along with other Program-related costs. There are **3,050 tire producers and suppliers** registered with ARMA who collect these fees on the sale of each eligible product sold in Alberta and remit the funds to ARMA. We value their commitment and diligence as part of the frontline of the tire recycling program.



How the fees are used



	CAR AND LIGHT TRUCK TIRES <i>SPARES, SPORT & CROSS-OVER UTILITY VEHICLES</i>	\$4/tire
	SPECIALTY, INDUSTRIAL AND OTHER TIRES <i>TRAILER, ATV, DIRT BIKE, FORKLIFT, SMALL LOADERS, SKID-STEERS</i>	\$4/tire
	MEDIUM TRUCK TIRES <i>LARGE COMMERCIAL FREIGHT TRUCKS AND PASSENGER BUSES</i>	\$9/tire
	OFF-THE-ROAD TIRES <i>EQUIPMENT USED IN CONSTRUCTION, ROAD BUILDING, FORESTRY MINING ETC.</i>	\$40, \$100, or \$200/tire depending on rim size

This chart breaks out the amount of tires processed by type for the past four years. Tires vary in size and weight, therefore a standardized unit is applied to present the results, using a passenger-tire-equivalent (PTE) of one PTE equalling 10 kgs. There is 100 PTEs in one tonne of tires.

Year	 Passenger, Light Truck, Specialty, Industrial & Other Tires (PTE)	 Medium Truck Tires (PTE)	 Off Road Tires (PTE)
2016-17	3,467,900	2,150,200	448,500
2017-18	3,761,700	2,035,400	236,200
2018-19	4,039,300	2,198,700	523,000
2019-20	3,922,100	1,929,100	381,600



WHAT HAPPENS TO YOUR SCRAP TIRES

Two registered recyclers coordinate the collection of scrap tires from **2,200 vehicle and tire dealers, auto repair shops and 350 tire recycling depots in 128 participating municipalities**. Since 2002 4-H clubs have partnered with Alberta Recycling to clean up rural areas, collecting **1.16 million tires** for which they have received funding per tire.



STAGE 1

Tires are shred into large pieces for use as tire-derived aggregate (TDA). The steel and fibre are still embedded.

APPLICATION:

TDA is a cost-effective alternative to conventional aggregate (a limited and non-renewable resource) for use in leachate drainage blankets.



STAGE 2

Shred is ground to make mulch, with the steel removed.

APPLICATION:

landscaping.



STAGE 3

Tires are processed into crumb with the steel and fibre removed.

APPLICATION:

Playground surfaces, various molded products, synthetic turf and athletic tracks.

ARMA oversees end-of-life processing of tires, electronics, paint and used oil materials on behalf of the province. Since 1992, ARMA has worked with a broad spectrum of stakeholders to shape recycling policy, create a value-added processing system, minimize waste entering landfills and to act as collective stewards of Alberta's environment.

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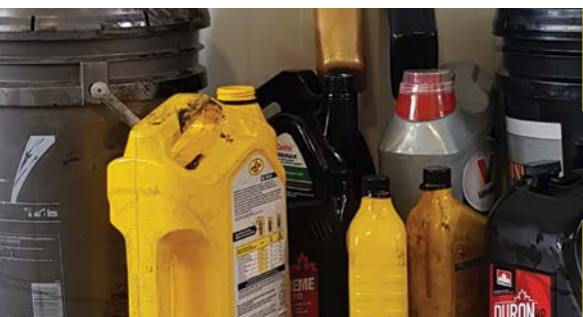




USED OIL MATERIALS RECYCLING

2019-20 PROGRESS REPORT

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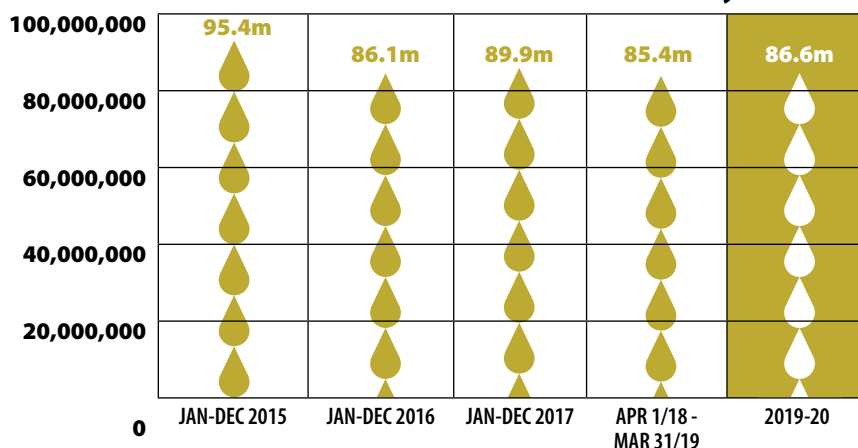
MAKING RECYCLING MORE CONVENIENT

Municipalities and Indigenous communities have stepped up and registered **178 used oil materials collection sites** (and counting!). Alberta is well on its way to being environmentally covered when it comes to the recycling of used oil, filters and containers.

RESULTS OF OIL RECOVERY

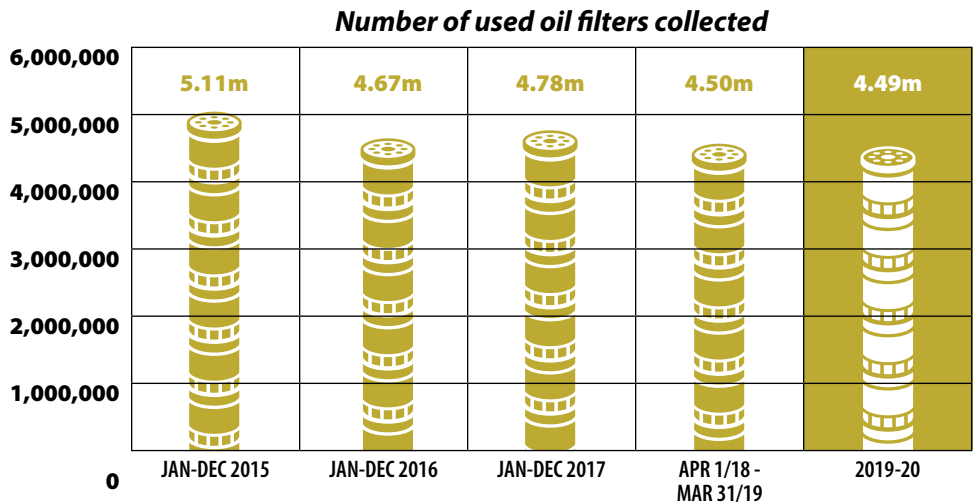
The chart presents results over the last five years. On October 1, 2018 the government transferred management of the program from the Alberta Used Oil Management Association (AUOMA) to Alberta Recycling. With this transition, the fiscal year shifted from calendar to April-March.

Litres of used oil recovered annually



OIL FILTERS COLLECTED

The chart presents results over the last five years. As previously noted under the used oil recycling results, with the transition of program management from AUOMA to Alberta Recycling, the fiscal year shifted from calendar to April-March. Since 1997, **155.5 million** used oil filters have been collected.



ENVIRONMENTAL FEES AT WORK

The environmental fees that Albertans pay when buying new oil materials are used to help fund the collection and recycling of this material along with other Program-related costs. There are **246 producers and suppliers** registered with ARMA who collect these fees on the sale of each eligible product sold in Alberta and remit the funds to ARMA. We value their commitment and diligence as part of the frontline of the used oil materials recycling program.



How the fees are used

Recycling Expenditures

91%

Collection and recycling of electronics

Recycling Development

1%

R&D; Program awareness

Program Delivery Expenditures

4%

Costs to deliver the program

Corporate Administration

4%

Corporate costs

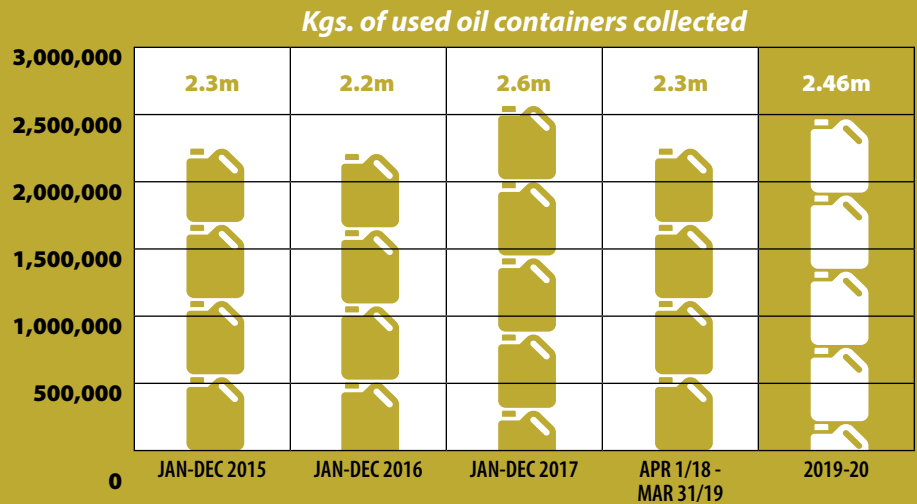
ALBERTANS SUPPORT THE USED OIL MATERIALS RECYCLING PROGRAM

Since 1997 a staggering amount of used oil materials have been kept out of Alberta's landfills and waterways. Based on Albertans' participation over the last 23 years, it's safe to say that Albertans endorse the recycling of used oil, oil filters and containers and the proof of this statement is evident in a recent poll which revealed that 86% of Albertans support the program.



OIL CONTAINERS COLLECTED

This chart presents results over the last five years. Similar to the notes for used oil and filters, with the transition of program management from AUOMA to Alberta Recycling, the fiscal year shifted from calendar to April-March. Since 1997, **40.5 million kilograms** of empty oil containers have been collected.



WHAT HAPPENS TO YOUR EMPTY CONTAINERS AND USED FILTERS

Plastic oil containers and metal oil filters are an equally important part of the Used Oil Materials Recycling Program as the environmental fees paid at the time of purchase help fund the collection and recycling of these materials.

The containers are pelletized and used as feedstock for products such as new containers, guardrails, fence posts and railway ties.

Oil filters are crushed (with the residual oil captured) and processed by metal recyclers for manufacturing into industrial materials such as rebar.



ENVIRONMENTAL STANDARDS FOR RECYCLERS

An objective of the Used Oil Program is to ensure that all used oil materials are collected and processed by registered recyclers in an environmentally and socially responsible manner. Monthly inspections by ARMA and an environmental audit every three years, confirm if the recyclers are following the requirements of the program.





MAKE SURE EVERY DROP COUNTS

If not managed and recycled properly, used oil is our nation's largest potentially hazardous material. ARMA is committed to making sure used oil materials are handled responsibly and effectively. We are also committed to providing the best possible program to Albertans by capturing all used oil, filters and containers to keep them out of the waste stream, leaving every place better than we found it.

CROSS-CANADA COLLABORATION

ARMA works with the other provincial programs through the national working group, the National Used Oil Materials and Antifreeze Council. One of the major initiatives that we collectively implemented was a web-based Environmental Handling Charge remittance application which is designed to streamline, modernize and harmonize the remittance process across the country.

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ELECTRONICS



PAINT



TIRES



USED OIL

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