

For a variety of logistical, financial and social reasons, End-of-Life Vehicles (ELVs) accumulate in remote communities. The ELVs often have a negative value because the cost to process, crush and transport the ELVs to a steel recycler exceeds the value of the parts and commodities.

Developing a system to decommission and recycle ELVs is a complex process. It involves getting federal and provincial approvals, organizing collection of old vehicles around the community, removing and managing a number of hazardous wastes, developing agreements with Producer Responsibility Organizations (PROs), and coordinating logistics to transport the decommissioned ELVs. Although challenging, the process can be very rewarding, create jobs in your community, and protect the land, water and human health.

The **Automotive Recyclers of Canada** (ARC) has produced a resource, *Recycling End-of-Life Vehicles in Canadian Remote Communities*, to help you get started. You can also contact board members from the **Automotive Recyclers of Manitoba** (ARM) to arrange a visit to one of their ELV recycling facilities.

In addition, **Tundra Take Back** has produced some helpful resources to help you plan your ELV decommissioning process.

1. REGISTRATION

There is no registration specific to end-of-life vehicles (ELVs), however, some of the waste materials (used oil and antifreeze, scrap tires, lead acid batteries) removed from the vehicles require registration with industry stewardship organizations to receive financial and transportation support through the programs. It is also necessary to have an environmental review done through Indigenous Services Canada (ISC) and to register as a hazardous waste generator with the Manitoba Government (Conservation and Climate Approvals Branch).

In addition, there are a number of different federal and provincial regulations to be aware of when beginning the ELV recycling process outlined below.

Federal acts pertaining to the ELV recycling process for First Nations in Manitoba include the:

- *Canadian Environmental Protection Act* (CEPA)
- *Transportation of Dangerous Goods Act* (TDG)
- *Fisheries Act*
- *Indian Act*

Under CEPA, relevant regulations include: federal halocarbon regulations, and the ozone-depleting substances regulations. Most of the regulations in CEPA, the TDG Act, and the Fisheries Act describe which chemicals are environmentally hazardous, how to responsibly dispose of and transport these substances, and where to locate an ELV recycling operation. The applicable section of the Indian Act is the Indian Reserve Waste Disposal Regulation.

Provincial acts applicable to ELV recycling in Manitoba include the:

- *Environment Act*
- *WRAP (Waste Reduction and Prevention) Act*
- *Workplace Safety and Health Act*
- *Ozone Depleting Substances Act*
- *Dangerous Goods Handling and Transportation Act*

These Acts regulate how to transport and dispose of environmentally hazardous substances as well as how to keep workers safe during the recycling process. Although provincial acts are not always directly applicable to First Nations, they provide best practices to work from.

2. PLANNING

There are 3 main options to process End-of-Life Vehicles (ELVs) depending on your community infrastructure, the distance to an ELV processor, and the number of ELVs in your community.

Option 1: Transport non-decommissioned and uncrushed scrap vehicles to the nearest ELV recycler using a flat deck trailer.

Option 2: Pay for a trained ELV recycling technician to come to your community and decommission the ELVs then contract a company with a mobile crusher to come to your community and crush the vehicle hulks for transport out of the community.

Option 3: Take training and acquire the equipment needed to decommission and crush the vehicles using labour from your community.

In each of these approaches there are 3 general phases:

- 1) Do an inventory so you know how many ELVs there are in your community, then establish a marshalling (collection) area and start towing the ELVs to the marshalling area.
- 2) Determine the best solution to process and remove the ELVs from your community as listed above.
- 3) Create a process to continuously move the ELVs to the marshalling area where they can be managed and processed. This will prevent a backlog of ELVs in the community, ensure that hazardous materials don't leak into the land, air, and water, and limit the number of scrap vehicles that become damaged, burnt or vandalized.

Although many considerations and processes are the same for all communities, there will be differences because:

- Infrastructure and expertise will vary between communities
- Processing areas may be temporary or long-term
- Storage and transportation options for hazardous materials will differ

Decommissioning involves removing the following wastes from the scrap vehicle before crushing it:

- Engine oil
- Antifreeze
- Stale gas or diesel
- Mercury switches
- Lead wheel weights
- Refrigerant
- Lead battery
- Windshield washer fluid
- Tires

3. TRAINING

There is no single comprehensive training program in managing End-of-Life Vehicles (ELVs). Below is a list of training connected to ELV recycling and a brief description of the training. It is beneficial to schedule the training as soon as possible.

DECOMMISSIONING: Scout Environmental designed Tundra Take Back “to be a practical skill development program that empowers local communities to clean up metal dumps, and in doing so, keep toxic pollutants out of the environment.” More information here: <https://tundratakeback.ca/>

It is also possible to contact the Automotive Recyclers of Manitoba to arrange a day or two of training to have them walk you through the decommission process in one of their ELV recycling facilities. More information here: <https://arm.mb.ca/about-arm/>

REFRIGERANT REMOVAL CERTIFICATION: The Manitoba Ozone Protection Industry Association offers training in refrigerant removal. You can register for training here: <https://mopia.ca/training/>. If you have a group of staff that is interested in this training MOPIA is open to doing training in your community. To ask about in community training you can find contact information for MOPIA here: <https://mopia.ca/contact/>.

TRANSPORTATION OF DANGEROUS GOODS (TDG): TDG training is needed to know how to ship hazardous materials safely and according to regulation. Safety Services Manitoba (<https://safetyervicesmanitoba.ca/occupational-safety-home/>) offers TDG training in Winnipeg or online: <https://safetyervicesmanitoba.ca/occupational-safety-home/occupational-safety-training/online-safety-training/>

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS): WHMIS teaches how to identify hazardous products, control hazards from these products, and safely handle controlled products. Safety Services Manitoba (<https://safetyervicesmanitoba.ca/occupational-safety-home/>) offers WHMIS training in Winnipeg or online: <https://safetyervicesmanitoba.ca/occupational-safety-home/occupational-safety-training/online-safety-training/>

FIRST AID: First Aid training will help you know how to respond if someone gets injured on the job site. There are a number of options for First Aid training. Here are a few suggestions to check out:

- You may be able to organize First Aid training through the health centre/nursing station in your community
- First Aid Training Centre
- Safety Services Manitoba

Safety Services Manitoba has partnered with University College of the North to deliver training in Northern Manitoba. Contact Safety Services Manitoba to find out more. They also offer a number of other workplace health and safety courses such as spill response training, fall protection, and hazard recognition, evaluation, and control. Some can be taken online or remotely.

Safety Services Manitoba contact info:

<https://safetyervicesmanitoba.ca/about-us-home/contact-us/connect-with-us/>

Health and Safety courses:

<https://safetyervicesmanitoba.ca/occupational-safety-home/health-safety-courses/>

Online courses: <https://safetyervicesmanitoba.ca/occupational-safety-home/occupational-safety-training/online-safety-training/>

Live remote training: <https://safetyervicesmanitoba.ca/occupational-safety-home/occupational-safety-training/live-remote-training/>

LEAD BATTERIES, TIRES, USED OIL/ANTIFREEZE: These materials are all part of provincial Producer Responsibility Organizations (PROs) often referred to as “stewarded materials”. Each PRO has resources on how to handle their designated material, and different procedures for registration, collection, storage and reporting. To learn more, visit the pages for [tires](#), [lead batteries](#) and [used oil/antifreeze](#).

ADVANCED TRAINING: Once you have an established marshalling, decommissioning and shipping process for ELVs and the hazardous wastes they contain, your community might be interested in further developing the business aspect of your ELV recycling facility. This will allow you to reuse parts from scrap vehicles, perform vehicle maintenance, and generally help to manage the business.

The following training might interest your team:

1) Mechanics

- a. University College of the North: Automotive Technician, Heavy Duty Mechanic
- b. Manitoba Institute of Trades and Technology: Automotive Service Technician
- c. Red River College: Automotive Technician
- d. Assiniboine Community College: Automotive Technician, Automotive Service Technician - Apprenticeship, Heavy Duty Equipment Technician

2) Administration/Business Management:

- a. Yellowquill College: Business Certificate, First Nation Management and Administration
- b. Neeginan College: Social Innovation and Community Development Program
- c. University College of the North: Business Administration, Office Assistant

4. PROCESS AREAS

1) Marshalling Area

The choice of the marshalling area will bring a variety of challenges and opportunities. The benefits of the local landfill or transfer station are that all of the End-of-Life Vehicles (ELVs), other metal products and other stewarded waste materials will be in a central location. The challenges are that the landfill or transfer station is typically out of town, may not have power or security, and is frequented by bears.

Because each remote community will be unique, the community needs to consider the best location for the marshalling of ELVs and utilize reliable local infrastructure and expertise where possible. Ideally, the Marshalling Area will be close to the areas where ELVs will be processed, crushed and hazardous materials will be stored.

2) Processing Area

The processing area of a Canadian Automotive Recycler Environmental Code (CAREC) certified automotive recycler has a:

- covered roof to shed the rain and snow from the work area with a concrete pad to contain any spilled fluids
- power and lights
- safe and sturdy rack to place the ELV during processing
- drums and tools to drain hazardous liquids such as engine oil, antifreeze and stale gas
- equipment (A/C machine, gas tank spike, generator, loader)

In most remote communities, much of this basic infrastructure will not be present. As such, the processing area in a remote community must have the following features at a minimum:

- The area must be level and draining of fluids cannot proceed in the rain if the process area is not covered.
- Substrate must be at least semi-permeable to allow clean-up of spilled fluids. Clay or compacted snow could provide a temporary barrier that can be cleaned up at the completion of the processing. A plywood floor with absorbent pads could also provide a suitable barrier over sand or crushed rock.
- The area must be at least 30 metres away from a stream or wetland and runoff from the process area must be able to be contained in the event of a large spill.

3) Crushing Area

Once the ELVs have been processed and the hazardous materials have been removed, the ELVs are ready for crushing or bailing before transportation.

Because not all the fluids have been removed from some of the parts (e.g. differential fluid), the crusher must have the ability to collect any fluids that may be liberated from the ELV during crushing. Normally, differentials and transmissions will not break during a crush, but if they do, the fluids must be collected. Normally, a crush of 100 well processed ELVs will generate about 20 litres of fluids during crushing.

4) Hazardous Materials Storage

All hazardous fluids must be stored with secondary containment in a secure location (including protection from bears) and the containers must be clearly labelled.

You can learn more about storage and handling for [tires](#), [lead batteries](#) and [used oil/antifreeze](#) on the pages specific to these materials.

5. DECOMMISSIONING / HAZARDOUS MATERIALS MANAGEMENT

End-of-Life Vehicles (ELVs) that have been in the remote community for some time may have had parts removed, be physically damaged, or burned. The processing of these damaged ELVs is more difficult and potentially unsafe, however best efforts should be made to safely remove the remaining hazardous materials prior to crushing, as follows:

- The three primary fluids to be drained before crushing include engine oil, antifreeze and stale gas. Other fluids in transmissions and differentials are not practical to drain before crushing.
- Windshield washer fluid can be easily removed with suction and reuse.
- Tires must be removed before crushing but because there will likely not be a tire machine on site, the tires can be left on the rims.
- Mercury switches are easily removed by a trained crew.
- Refrigerants must be removed using a portable A/C machine by a licensed technician in accordance with the CAREC standards.

Engine Oil

- Ideally, engine oil will be stored separately from other lubricants so that the oil can be burned in a used oil furnace in the community. This will provide a fuel for a community building in the winter plus reduce the cost of removal of used oil from the community.
- If the engine oil is going to be used as a fuel, the oil must be stored separately and not be contaminated with stale gas or other lubricants.
- Storage requirements for engine oil: must be in secondary containment, in a secure location (away from wildlife or vandalism) and properly labelled.
- Used engine oil to be used as a fuel is not subject to the *Transportation of Dangerous Goods Act*; however, transportation will be subject to Provincial Hazardous Waste Regulations.
- Barrels of used engine oil should not be transported in quantities more than 220L at a time.

Antifreeze

- Radiators must be drained prior to crushing.
- Storage requirements for antifreeze: must be put in separate barrel with secondary containment, in a secure location and properly labeled.
- Some antifreeze will remain in the block of the engine and may be partially recovered during crushing.

Stale Gas

- Stale gas that cannot be reused on site must be drained by puncturing the gas tank with a spike.
- Stale gas must be stored in a separate labelled container that has secondary containment.

Fluids from Crusher / Bailer

- Crushing or bailing an ELVs will generate additional fluids and water – about 20L per 100 ELVs.
- Modern machines will collect the runoff in separate containers or holding tanks.
- Crusher / Bailer fluids must be captured in a labelled container with secondary containment.

Lead Batteries

- Lead batteries must be removed and placed in a secure location that is protected from extreme freezing temperatures.
- Used and fully discharged lead batteries will have weak acid that can freeze and cause the battery casing to crack and the acid will leak during the next thaw.
- Batteries must be transported as a hazardous waste and dangerous good.

Windshield washer fluid

- Can be pumped out and reused by the community.

Mercury Switches

- ABS and hood mercury switches are easily removed during processing assuming the ELVs are not badly damaged.
- Mercury switches are in different locations on different vehicles, and can be found on all vehicles manufactured before 1995 and on all North American vehicles manufactured up to 2003.
- Switches should be removed and placed in a separate container. Ask the metal recycler you send your ELV hulks to if they will accept the removed switches.

Refrigerants

If found in ELVs, it is important to remove the refrigerant. The following details apply for the removal of refrigerants:

- A licensed technician is needed to do refrigerant removal.
- A portable or on site refrigerant removal machine will be needed.
- ELVs with refrigerants should be logged along with the amount removed.
- Containers for refrigerants must meet Federal and Provincial requirements and containers should be tracked using movement documents to show destruction of refrigerants.

Tires

- Tires must be removed from the ELV before crushing.
- Tires can be left on rim for transportation to tire recycling.
- Tires should not be cut off of rims.

You can learn more about storage and handling for [tires](#), [lead batteries](#) and [used oil/antifreeze](#) on our pages specific to these materials.

6. WORKER SAFETY AND SPILL RESPONSE

There are many environmental and safety hazards when processing and recycling ELVs. These hazards are exacerbated in remote communities plus the response to worker injury can be more lengthy.

Safety

Worker safety is the first priority. Wildlife, handling damaged ELVs and uneven terrain with limited infrastructure are concerns when working in a remote community. Have regular safety meetings to encourage safe work and make sure staff are feeling safe when doing tasks.

Contamination

Small leaks and spills will occur during processing and crushing of ELVs – this is inevitable even in ideal conditions. Systems need to be in place for an adequate response to these small leaks and spills and ongoing cleanup of contaminated soil or snow after processing and crushing.

Spill Response

The biggest concern is a significant spill of hazardous fluids or a tire fire during storage or transportation. The processing crew needs to have training in emergency response plus have significant materials for spill response.

Important preparations for processing ELVs include:

- Safety plan that summarizes the potential worker hazards at the site and available medical response in the community.
- Spill Response plan that summarizes the quantity of hazardous fluids expected on site, a site map of the processing and crushing area with proximity of streams and wetlands and required quantities of spill response equipment and materials.

7. TRANSPORT / REMOVAL

When recycling End-of-Life Vehicles (ELVs), you will have to plan for transportation of hazardous materials out of your community as well as the vehicle hulks. There are Producer Responsibility Organizations (industry stewardship recycling groups) that will work with you to arrange and pay for transportation for scrap tires, lead batteries, and used oil/antifreeze. Removing the other materials (stale gas, mercury switches, refrigerants, and vehicle hulks) will have to be done at your own expense.

As long as you follow requirements in the federal *Transportation of Dangerous Goods Act* and Manitoba's *Dangerous Goods Handling and Transportation Act* and use a licensed transporter, you can determine the specifics of transport according to what works best for your community. There are a number of scrap metal processors in Manitoba that will transport vehicle hulks, including Gerdau.

Generally, backhaul is the most cost effective way to transport decommissioned and crushed ELVs, and the hazardous materials out of the community. Backhaul is shipping freight on a return journey by ship, air, train, or truck.

Zender Environmental Group out of Alaska has a number of resources related to backhauling: <http://www.zendergroup.org/backhaul.html>

They offer the following steps to take for setting up backhaul:

- Figure out your inventory.
- Prepare the backhaul material for safe storage while you work on the rest of the steps. (**Especially if you have any unsafe materials.**)
- Contact your vendor (the company you are sending your materials to).
- Contact your transporter to work out a schedule for them to pick up the material and take it to your vendor.
- Contact the vendor to let them know when the material will arrive.
- Package and stage the material, if you haven't already. Ensure it is labeled properly.

Find more details here: http://www.zendergroup.org/docs/backhaul_steps.pdf

8. POST CRUSHING CLEAN UP

Crushing End-of-Life Vehicles (ELVs) will generate broken glass, plastic and other debris as part of the crushing process. Provisions must be made for the clean up of the crusher location after all (or a season) of the ELVs have been crushed and transported. The material cleaned up from the crusher site will be benign and can be disposed of in the landfill. Soil and snow that becomes contaminated can also be disposed of as top cover in the landfill assuming that the oil content is less than 3%.

Following the completion of each clean up, it is recommended to have an environmental professional inspect the site to ensure that the ELVs were processed thoroughly, and give feedback to the crew that conducted the processing and crushing of the scrap vehicles. Ideally, once a community has had its backlog of ELVs removed, new ELVs will be moved to a central processing area to prevent another buildup of scrap vehicles.

9. RECORD KEEPING

The ELV recycling crew should track the following and keep records on site to show how much you have accomplished and in case you need the information for environmental reporting:

- Number of ELVs processed and crushed
- Vehicle Identification Numbers (VINs)
- Quantities of hazardous materials recovered:
 - Engine oil
 - Other lubricants
 - Antifreeze
 - Lead batteries
 - Mercury Switches
 - Refrigerants
 - Tires
- Fate of hazardous materials
- Post-crush clean up and inspection report

10. RECOMMENDED RESOURCES

Here are some recommended resources if you want more information on End-of-Life Vehicle recycling:

- Automotive Recyclers of Canada (ARC): <https://autorecyclers.ca/>
- Automotive Recyclers of Manitoba (ARM): <https://arm.mb.ca/>
- Canadian Automotive Recyclers Environmental Code (CAREC):
<http://carec.ca/carec-en-homepage.htm>
- Recycling ELVs in Canadian Remote Communities guide: <https://autorecyclers.ca/about-arc/issues>
- Tundra Take Back: <https://tundratakeback.ca/>

ELVs & CAR CRUSHER EXAMPLE - BUNIBONIBEE CREE NATION

Since 2017, Bunibonibee Cree Nation and Keewatin Tribal Council (KTC) have been working to safely crush old cars and have them removed from the community. Steve Carnegie, from KTC, tells a bit of the story in this video.

<https://www.youtube.com/watch?v=-517UHHuyrU>

