earthbound environmental

Town of Gillam

WASTE DIVERSION STRATEGY

Prepared For:

The Town of Gillam

&

North Central Development

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Integrated waste management

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EXECUTIVE SUMMARY

This Waste Diversion Strategy has been developed to assist the Town of Gillam to implement a successful recycling program for a broad range of recyclable materials. These materials include residential recyclables, used oil, used tires, and scrap metal.

Implementing a Waste Diversion Strategy has the following main objectives:

- to create employment opportunities,
- to protect the local environment,
- to extend the life of the local landfill,
- to increase community pride, and
- to reduce the amount of waste material being improperly discarded.

Residential Recycling

Based on the financial estimates provided in this report, annual costs for implementing a curbside blue box recycling program for local residents, and including continued cardboard collection from commercial establishments in town, will be approximately $17,000. This cost includes all operating costs (i.e. material collection, storing, shipping, and processing) as well as the amortised costs of purchasing the necessary equipment and supplies.

Revenue from the Support Payments provided by the Manitoba Product Stewardship Corporation are estimated at $14,000. The annual cost to the Town of Gillam is therefore anticipated to be approximately $3,000.

It is projected that the residential recycling program will divert approximately 72 tonnes of material from the landfill every year when fully established.

Used Oil Recycling

The projected annual operating and amortised capital costs associated with establishing a public depot to collect used oil, used oil filters, and used oil containers in Gillam is approximately $5,000 per year. The Manitoba Association for Resource Recovery Corporation is projected to provide $2,300 per year to support the operation of the depot. This would leave close to $2,800 required every year from the Town of Gillam to set-up and operate the depot.

Used Tire Recycling

Assuming that the Town if Gillam does not change the way used tires are collected or shipped, net revenue from recycling tires is projected to be approximately $450 per year. This is based on a storage subsidy of $0.50 per tire provided by the Tire Stewardship Board.

Scrap Metal

Due to the lack of an established scrap metal collection system for northern communities, there are few cost-effective options to remove the scrap metal collected at the Gillam landfill at this time. The transportation costs are too high and the value of the material too low to attract the interest of scrap metal processors.

It may be possible to contract a company to travel to Gillam, compact the material, and transport it to markets in the south although this will be a fairly expensive proposition. The companies who have been contacted are reluctant to provide cost quotations.

The need to compact scrap metal before shipping and the requirement to remove CFCs from all refrigeration equipment contribute to the cost of shipping scrap metal.

The Regional Recycling Coordinator will continue to monitor the situation and provide more information about scrap metal recycling opportunities to the Town of Gillam as they develop.

Employment Summary

It is anticipated that approximately 40 hours per month in new employment will be created as a result of implementing the waste diversion opportunities discussed above. These additional wage costs have been included in the financial projections provided in this report.

Promotion & Education

Effectively promoting the recycling initiatives implemented by the Town of Gillam will be essential to achieving successful diversion rates. Approximately $910 in combined funding has been allocated in the budgets of the recycling initiatives to ensure that sufficient resources are available to adequately promote the program. The Regional Recycling Co-ordinator is also available to help with promotion & education activities.

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Town of Gillam

WASTE DIVERSION STRATEGY

1. Overview

This Waste Diversion Strategy has been developed to assist the Town of Gillam implement a successful recycling program for a broad range of recyclable materials. These materials include residential recyclables, used oil, used tires, and scrap metal.

The components of the Strategy have been designed to work together and take advantage of available synergies. It is possible, however, for Gillam to consider rolling out individual components in stages if sufficient resources are not available to implement the entire Strategy at the outset.

Implementing a Waste Diversion Strategy has the following main objectives:

- to create employment opportunities,
- to protect the local environment,
- to extend the life of the local landfill,
- to increase community pride, and
- to reduce the amount of waste material being improperly discarded.

1.1. Community Profile

Number of Residents	1300
Number of Households	483

1.2. Current Waste Management Overview

- The Town of Gillam is in negotiation with a company that is interested in contracting the management of the local landfill site. This would include the provision of a staff person on-site who could help keep recyclable materials organized and sorted.
- The landfill currently has segregated areas for tires, scrap metal, and regular garbage.
- There are no arrangements for the recycling of residential waste materials.
- Commercial cardboard is currently picked up by Town crews and burned at the landfill.

2. Waste Reduction Program Supports

2.1. *Community Waste Minimisation Committees*

Recycling and waste reduction programs are most successful when people in the community understand and support the plan they are being asked to help implement. Receiving input from community leaders and people who will be using the system is an important component of maximising the quality of the system and creating effective buy-in.

In this regard, it is recommended that the Town of Gillam establish a Waste Minimisation Committee to assist in the design and implementation of the Waste Diversion Strategy outlined below. Membership could include:

- Residents with an interest in recycling issues
- Businesses and organisations that have a role in program implementation
- Program funders
- Local government representatives
- Recycling service providers
- Anyone else with an interest in contributing to the process

Key activities of this committee would include the design, implementation, evaluation, and on-going management of the waste diversion program.

Design – The Committee would provide a good forum for finalising ideas about how the program should be designed.

Implementation – Launching an effective waste diversion program requires time to properly prepare and roll-out the initiative. The Committee could assist in a range of initial program promotional activities (see list below).

On-Going Program Evaluation & Management - Town staff may not have the time to adequately manage all aspects of the program. The Committee could support Town staff to manage and evaluate the program.

2.2. *Regional Co-operation*

Working together with other communities in the region that are actively recycling can often provide significant benefits. Examples of ways that Gillam could benefit from working with other communities on recycling issues include:

Glass Crushing – Most communities will require access to a glass crusher to process the glass that is collected through their residential recycling programs. As this piece of equipment will only be needed on an occasional basis, it would make good financial sense to have one crusher purchased collectively that could be used by all of the communities in the regional network.

Scrap Metal Collection – Instead of each community negotiating with a scrap metal hauler from southern Manitoba to remove metal that has been collected, it would likely be preferable for all of the scrap metal in the region to be picked up at the same time. Maximising the quantity of available metal would also improve the economics of making the trip for the company doing the hauling.

2.2.1. Regional Recycling Co-ordinator

North Central Development has hired a Regional Recycling Co-ordinator to continue providing assistance to communities in establishing and operating their programs over the longer-term. The Regional Recycling Co-ordinator (Barb McIvor) is available to assist communities to establish their recycling programs. She can be reached at North Central Development by calling 1-204-677-1496 or by email at bmcivor@northcentraldevelopment.ca.

2.3. *Landfill Management*

Provincial Landfill Management Regulations will eventually require all landfills to be staffed while open to the public. This will create an opportunity for increased waste diversion and improved recycling rates as the landfill staff will be able to monitor how and where material is dropped off and assist with the separation of recyclable materials.

2.4. *Funding Programs for Capital Purchases*

There are several funding programs offered by the provincial or federal government that may be interested in helping fund the purchase of the capital items required to get the recycling program going.

Green Infrastructure Program – This federal program provides money to support "Investments in local fixed capital assets that have the effect of providing either cleaner air, water, or wastewater…".Solid waste recycling initiatives are specifically identified as eligible for funding under this program.

Waste Reduction & Prevention Fund (WRAP) – This is a provincial fund specifically designed to support waste reduction and recycling initiatives. The focus of the fund is on projects that promote regional waste management and/or recycling.

A proposal for the Green Infrastructure Program is currently being prepared by Barb McIvor for cover 2/3 of the capital costs related to establishing recycling programs. Only non-First Nation communities are eligible for this funding. Gillam will be applying to this fund independently.

Another funding option would be to approach businesses and other large organisations operating in the community (e.g. Manitoba Hydro and/or the Northern Store) for assistance in purchasing the necessary capital equipment. Their contribution could be recognised through an offer to prominently display their name on the recycling trailer and/or blue boxes.

The Regional Recycling Co-ordinator is available to assist in the development of these proposals.

2.5. *Promotion & Education*

The success of any waste minimisation program hinges on how much "buy-in" there is to the initiative among local residents. People must understand how the program works and how they are being asked to participate, as well as why participating is important.

"Getting the word out" to local residents about the program in Gillam could include the following components:

- Portable display for use at community events.
- Presentations at community meetings/events.
- Promotional events could be organised such as an official Program Launch where local political leaders, business representatives, and other involved parties could talk about different aspects of the program.
- A recycling info-line (probably at the Town office) for people to call when they have questions about the program.
- Media promotions such as print or radio advertising, news releases, newspaper articles, and local radio shows.
- Print materials such as billboards, brochures/flyers, placemats, and posters.

The Manitoba Product Stewardship Corporation (MPSC) produces promotional material at no charge for Manitoba communities implementing recycling programs. The focus of the information presented is on programs to collect MPSC eligible materials but they will also include information on other local waste minimisation programs if asked (e.g. used oil, used tire, and scrap metal recycling). See sample in Appendix A.

In the past, the MPSC has also provided free decals, utility bill inserts, fridge magnets, and posters that promote recycling. Barb McIvor is available to assist your community in preparing the necessary information for the MPSC and co-ordinating delivery of the printed material.

A thorough discussion of promotional activities, along with an extensive list of available internet resources, is available in Appendix B.

2.6. *Students Acting for Recycling (STAR) Program*

The MPSC provides an annual $500 honorarium to all schools in the province to help support their recycling efforts. Gillam could encourage the schools in the community to apply for this funding and assist them in integrating their recycling initiative into the broader community-wide program.

2.7. *Waste Management Contact List*

A complete list of contacts that will be useful while implementing this Waste Diversion Strategy has been provided in Appendix C.

3. RESIDENTIAL RECYCLING PROGRAM

The following discussion outlines a recycling plan for residential recyclables in Gillam. The focus of the program will be on materials that are eligible for support payments through the Manitoba Product Stewardship Corporation (MPSC). These materials include:

Paper Products	Containers
• Old Newspapers (ONP) • Magazines • Boxboard (e.g. cereal boxes) • Telephone Books • Old Cardboard Containers (OCC)	• Milk Cartons • Aseptics (e.g. tetra-pac drink boxes) • #1 PET plastic containers • #2 HDPE plastic containers • Steel Cans • Aluminum Cans • Glass Containers

All communities must collect the following five mandatory materials to be eligible for MPSC support payments: newspapers, aluminum cans, steel cans, PET #1 plastic bottles, and glass containers.

For communities north of the 53rd parallel the MPSC currently provides a subsidy of up to $192 per tonne[1] of eligible materials collected from residents and recycled through approved end uses. MPSC support payments are subject to change depending on market conditions and are intended to cover 80% of the costs of operating recycling programs in Manitoba communities.

The MPSC has indicated that they strongly support the expansion of recycling opportunities in Northern Manitoba. They are participating in the current planning process and would like to help ensure that the programs which will be implemented are successful.

3.1. *Residential Recyclable Generation Estimates*

The following Table provides an estimate of the amount of each type of material that will be generated annually from residences in Gillam after the program has become established. Any material generated in commercial establishments (e.g. stores and restaurants) as well as schools and offices will be over and above the estimates provided below.

[1] This includes a base rate of $152 per tonne plus a Northern Assistance supplement of $40 per tonne. To qualify for Northern Assistance, communities must apply to MPSC and be able to demonstrate that their program costs are high enough to justify the additional support.

It should be noted that the Municipal Support Payment applies to residential recyclables only. Material collected at commercial establishments such as offices, restaurants, and stores would not technically qualify for the Support Payments. Cardboard boxes collected for recycling will qualify for Support Payments as long as the total amount claimed does not exceed 25% of the weight of all other materials reported. Contact the MPSC for further details.

Table 1 – Projected Generation of Recyclable Material From Residents

	Per Capita Generation (kgs/yr)	Local Population	Total Estimated Generation (Tonnes/yr)	Projected Capture Rate	Total Projected Recovery (Tonnes/yr)
ONP/Flyers	32 kgs	1300	41.1 T	50%	20.5 T
Magazines	11 kgs	1300	14.3 T	50%	7.2 T
Tel. Books	1.0 kgs	1300	1.3 T	50%	0.7 T
Boxboard	16 kgs	1300	20.9 T	50%	10.5 T
Cardboard	15 kgs	1300	19.9 T	50%	9.9 T
Milk Cartons	5 kgs	1300	5.9 T	50%	2.9 T
Aseptic	1 kgs	1300	1.0 T	50%	0.5 T
PET #1 Plastic	3 kgs	1300	4.0 T	50%	2.0 T
HDPE #2 Plastic	4 kgs	1300	5.6 T	50%	2.8 T
Steel Containers	7 kgs	1300	8.5 T	50%	4.2 T
Aluminum Containers	2 kgs	1300	3.0 T	50%	1.5 T
Glass bottles	15 kgs	1300	19.8 T	50%	9.9 T
TOTAL	112 kgs	1300	145.2 T	50%	72.6 T

(Per Capita Generation Rate estimates were derived from the "Rural Manitoba Residential Waste Composition Study" prepared for the Manitoba Product Stewardship Corporation by earthbound environmental Inc., 2001)

Based on the assumptions in the above Table, a total of 145 tonnes of MPSC-eligible materials will be generated by residents of the Town of Gillam every year. Of this total, it is realistic to expect that 50% could potentially be captured by a mature, successful curbside recycling program. Approximately **72 tonnes** of eligible material is therefore projected to be recycled every year when the program becomes established.

These estimates are based on generation figures for communities with between 1000 and 5000 people in southern Manitoba. There are reports that northern communities have a different residential waste profile including higher levels of cardboard boxes in the residential waste stream. These estimates are still useful as a rough guide in the absence of data for residential waste in Northern Manitoba.

3.2. *Collection System*

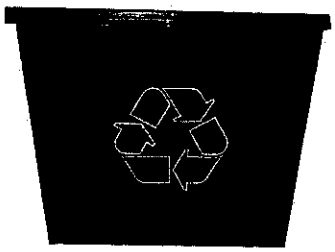
3.2.1. Curbside Collection

Gillam has decided to implement a curbside system to collect material from the local community. Residents will be asked to place their recyclables in blue boxes to be put out for collection.

Blue Boxes

Homeowners will use blue boxes to collect recyclable materials in their homes. When full, these boxes are to be placed out at the curb (or in the protective wooden garbage bins) on the same days as regular garbage collection.

Picture 1 – Blue Box



The same type of high walled 21-gallon blue boxes used in the Thompson recycling program are recommended for use in Gillam. The relatively large capacity of these containers provides additional storage convenience for homeowners.

It is suggested that residents be asked to place all materials in the blue box with the following instructions:

- Cardboard will need to be broken down and flattened (placing large amounts of flattened cardboard beside the blue box would also be acceptable).
- Glass bottles should be placed on the top of the other recyclables to make it easier to segregate these materials at the curb.

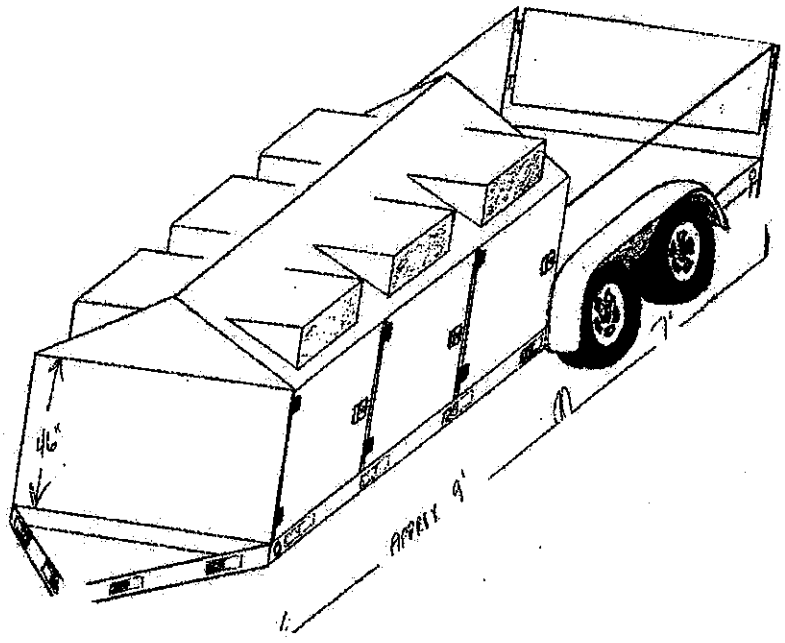
A list of available blue box suppliers and price quotations are provided in the equipment supplier list provided in Appendix D.

Recycling Trailer

A trailer pulled behind the existing town truck will be used to collect the bags and transport them to the storage facility. A customised trailer has been designed to hold the large plastic mesh bags that will be used to ship material to Thompson for processing (see Picture 2). The large bags would fit inside the compartments on the trailer and be removed through the side doors when full.

Contact information for the company that provided the best quote to build the trailer is provided in Appendix D. The Regional Recycling Co-ordinator is available to assist you in ordering a trailer and having it delivered to your community (or picking it up from the manufacturer).

Picture 2- Trailer Design



The trailer design includes room for 3 large storage bags on each side (the bags measure 35"wide x 35"long x 47"high) and a row of steel barrels at the back. Two of the bags could be used to collect mixed recyclables, one bag for cardboard, and the barrels would be used to collect glass. There would also be room in the open back section for collecting additional cardboard, scrap metal, tires, or other bulky items.

Using this system, recyclables collected at the curb would be loaded directly into the storage containers and be ready for shipping. When the large mesh bags with containers, paper products, and cardboard are full, they could be dropped off at the local site that will be used for storage. The barrels containing glass bottles would be emptied at a site at the landfill and stored until crushed.

3.2.2. Depot Collection

The recycling trailer can also be used as a stationary depot when not being used for curbside collection. It is important to have a depot in a central location (such as at or near the shopping centre) in town for people who have accumulated large quantities of recyclables and want to conveniently deposit them or for people who live in areas not serviced by curbside collection.

Additional signage should be placed at the site where the trailer will be parked identifying it as a recycling depot.

Using the trailer as a depot as well as curbside collection vehicle will save the Town of Gillam the expense of building a separate, stationary depot container. It will also be more

convenient to empty the depot as it will be on wheels and can be transported to the storage area instead of having to load the bags onto a separate vehicle.

3.2.3. Cardboard Collection

Cardboard will continue to be collected from commercial operations by Town staff and delivered for recycling to the local storage facility. It is imperative that business owners flatten all cardboard before collection. It is very expensive to do this during collection and collecting intact boxes is very expensive.

3.3. Material Sorting

The Thompson Recycling Centre (TRC) in Thompson will soon have the capacity to conduct a detailed sort of materials that they receive from other communities (they are currently in the process of designing and building a new material processing facility). This type of sorting process would make it possible to efficiently sort material that they receive from other communities. Glass would be not be shipped to Thompson for processing but kept in the community and used locally.

With TRC offering this type of detailed sorting service, the need for Gillam to sort their recyclables into separate individual categories prior to shipping is eliminated (with the exception of glass containers). Recyclables could be shipped in the bags used to collect them from the curb. This would significantly reduce the costs associated with operating the system in Gillam.

To cover the additional costs incurred by TRC to conduct the sorting, TRC will charge a $30 per tonne sorting fee for all unsorted material sent to them. Even with this charge, sending material to TRC for sorting is considerably cheaper than establishing a sorting facility in Gillam as shown in the following Table.

Table 2 – Comparison of Sorting Costs

	Sorting by Gillam Staff		Sorting done by TRC	
Projected Annual Recovery		72 Tonnes		72 Tonnes
Sorting Hours Required (@ 100 kg/hr)		720		
Wages (@ $10/hr)	$	7,200		
Building & Utility Costs (estimated)	$	500		
TRC Sorting Cost (@$30/T)			$	2,160
TOTAL SORTING COSTS	$	7,700	$	2,160

Gillam can begin sorting material locally prior to shipping it to Thompson at some point in the future if this option becomes preferable as there will be no contractual obligation requiring that material be sorted in Thompson. Starting off the program without the additional work and expense of establishing a sorting facility will, however, make it easier to implement and operate the new program.

When Gillam puts a staff person at the landfill, however, sorting recyclables may be a task that this person could be assigned. The labour costs associated with sorting the material

in Gillam would not, at that point, be incremental making this option considerably more attractive financially.

For budgeting purposes it will be assumed that sorting will be conducted at TRC.

3.4. *Material Storage*

The following Table outlines the projected volume of full storage containers that will be generated on a monthly basis in Gillam. This information will assist in determining how much storage space will be required and how often shipments will need to be made.

Table 3 - Recyclable Material Volume Requirements[2]

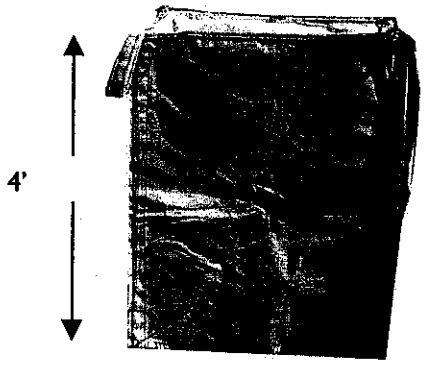
	Total Projected Recovery (tonnes/yr)	Average Weight of Loose Materials in 3'x3'x4' Storage Bags	**Total estimated Containers per Month**
ONP/Flyers	20.5	179 kgs	**9.6**
Magazines	7.2	179 kgs	**3.4**
Tel. Books	0.7	195 kgs	**0.3**
Boxboard	10.5	81 kgs	**10.8**
Cardboard	9.9	81 kgs	**10.2**
Milk Cartons	2.9	65 kgs	**3.7**
Aseptic	0.5	49 kgs	**0.9**
PET #1 Plastic	2.0	10 kgs	**16.0**
HDPE #2 Plastic	2.8	10 kgs	**22.4**
Steel Containers	4.2	39 kgs	**9.0**
Aluminum Containers	1.5	23 kgs	**5.5**
Glass bottles	9.9	Not to be shipped	
TOTAL	72.6		**91.6**

According to this analysis, approximately 91 large plastic mesh storage containers will be filled every month by the residential program in Gillam when fully established. This many containers would take up approximately 819 sq. ft. of floor space if left unstacked or approximately 410 sq. ft. if stacked 2 high. Additional material will also be generated by commercial and institutional sources.

It is anticipated that residential recyclables collected in Gillam will be stored in the Hydro Yard.

[2] The density figures used in this Table are based on observed industry averages.

Picture 3 - Storage/Shipping Bag



3' x 3' on the base

Features of the bag to be used for collecting, storing, and shipping material include:

- Handles on each corner for securing in the trailer and lifting with a forklift (if necessary).
- 4 sq. yd. capacity
- double reinforced bottom
- sealable top flap

Depending on the volume of the various materials in each bag, the weight of each storage bag will range between 100 and 200 lbs.

Because the storage bags are weather proof and can be sealed at the top, it is possible to store this material outdoors prior to shipping. It will be important, however, to make sure that the bags are securely sealed and no moisture can get into these bags during storage. Also, because sunlight causes the bags to degrade, keeping them in a shaded location or covered with a tarp would be recomended.

It will also be important to store the bags on pallets to prevent the bags from freezing to the ground. This would potentially cause considerable damage to the bag lining and may result in material dropping loose from holes that have been torn in the bags.

Material volumes collected at the beginning of the program will likely be less than those identified in Table 3 as it will take some time to achieve a 50% capture rate.

3.5. Shipping Material

3.5.1. Manitoba Hydro

Manitoba Hydro is willing to help transport recyclable material collected in Gillam to Thompson for processing. They have a truck leaving Gillam that passes through Thompson on its way back to Winnipeg every week. It has been suggested that some space will likely be available on this back-haul for recyclable material on a regular basis. Hydro has agreed to the arrangement on a pilot basis.

The trailer used by Manitoba Hydro has an attached crane that can be used to load the flat-deck trailer thus eliminating the need for a forklift or loading ramp.

Empty bags would be sent back to Gillam when full ones are dropped off at the processing centre or picked up by a representative from Gillam while in Thompson on other business.

Manitoba Hydro has indicated that they would prefer to load the material from a convenient location. It has been suggested that the Gillam Hydro Yard would have the outdoor space to store the collected material.

3.5.2. Recycling Trailer

If there is not sufficient space on the returning Hydro backhauls on a regular basis to transport all full bags to Thompson, it may be possible to have some of the material moved to Thompson using the recycling trailer. The recycling trailer to be used for curbside collection has also been specifically designed to transport the storage bags to Thompson. This has been accomplished by including a removable steel "roof-rack" in the trailer design that attaches to the frame when needed. Up to 15 storage bags could be loaded onto the roof rack in addition to the 10-15 bags that can be loaded into the base section. Additional bags could also be loaded onto the back of the truck used to pull the trailer into Thompson. This option would be most viable at times when the town truck, or another local vehicle with a trailer hitch, is already going to Thompson on other business.

Removing the storage bags from the compartments on the trailer when travelling to Thompson and using this space to ship flattened cardboard boxes may be a viable way to transport this material to the processor. Cardboard boxes are bulky and would be difficult to efficiently ship in the storage bags.

Again, the residential recycling program will take some time to mature to the point where 50% of material is being captured on a regular basis which will provide an opportunity to adjust the shipping schedule based on actual volumes.

For budgeting purposes it has been assumed that Manitoba Hydro will transport all recyclables to Thompson at no charge to the Town of Gillam.

3.6. *Processing*

In addition to assisting with material sorting, the Thompson Recycling Centre (TRC) is well-positioned to process (compact/bale and ship to an end-market) the recyclable material collected through Gillam's curbside program.

TRC has established a $20 per tonne processing fee for all material sent to them for processing. This fee will cover:

- Assistance with unloading incoming vehicles
- Recording the weight of incoming material and faxing the paperwork to the appropriate community
- Baling/compacting material
- Shipping material to end-markets
- A portion of TRC overhead costs

NOTE: TRC does not accept glass containers for recycling. All glass must be recycled locally (see below)

TRC will keep all revenue from the sale of the recyclables to end-markets after they have been processed and shipped. Each community sending material to TRC for processing will claim the MPSC support payment directly and pay TRC from those funds.

It should be noted that the amount of processing fee that TRC needs to charge is dependent on the market prices of recyclable material. In times when prices paid for recyclable materials are very high, TRC may reduce or eliminate the processing fee. If market prices drop significantly, however, TRC may need to increase the processing fee.

To help Gillam during the early phase of starting a residential recycling program, TRC has agreed to waive the $20/tonne processing fee for the first 24 tonnes of material shipped to them during 2001 or 2002. This offer will be valid until December 31 2002.

3.7. *Recording Material Weights*

3.7.1. Material Shipped to TRC

Recording the weights of material shipped to the processor will be required to claim the MPSC support payments. TRC has agreed to perform this function as part of the fee they will be charging for processing material. This will require TRC to record the weight of material as it is delivered to their facility. This information will then be faxed to the appropriate community for use in the MPSC funding claim forms.

Because the Thompson Recycling Centre does not accept glass, the weights of glass processed locally will need to be added to the weights provided by TRC when completing the MPSC claim form.

3.7.2. Glass

Because there is no easily accessible market for glass containers it is not feasible for TRC to accept this material for processing. The MPSC has identified a number of local end-uses that are available in the community such as backfill, roadway, and landscaping applications. A full description of acceptable end-uses is provided in Appendix E.

If a weigh-scale is not available in the community on a regular basis for weighing the amount of glass collected, it is possible to use average weights. Developing average weights involves a one-time weighing of five containers of the type used to store glass, averaging the totals and then applying that per container weight to all future containers of glass collected.

If glass will be stored on the ground at the landfill, the actual weight of all glass will need to be recorded prior to adding to the pile. This can be achieved by counting the number of barrels deposited at the site and applying the average weight developed using the methodology discussed in the previous paragraph.

For a copy of the entire report entitled "Reusing and Recycling Glass in Manitoba – Challenges & Opportunities" contact the Manitoba Product Stewardship Corporation.

3.8. *Submitting Weights to the MPSC*

Gillam will need to register with the MPSC prior to sending in claim forms. Once registration has taken place, Gillam simply needs to send in claim forms with the required supporting documentation in order to receive their per tonne support payment. See Appendix F for a copy of the MPSC Municipal Registration Guide & Forms.

3.9. *Capital Requirements*

The following capital items will be required:

- Trailer for recyclables (for curbside collection and to serve as a depot).
- Blue boxes for every household (plus a quantity of spares).

- Outdoor space for storing recyclables.
- One-month supply of large weatherproof storage bags for storing and transporting material to the processor.
- Pallets for use under storage bags (to avoid problems associated with wear and tear on the bags and the possibility of bags freezing to the ground in winter).
- Promotional materials (advertising, signs, flyers, etc.).
- Signage at the depot.
- Access to a glass crusher or a large piece of machinery that can be used to drive over and crush the collected glass.

3.10. *Staffing Requirements*

Town staff will collect the blue box materials from the curbside program in residential areas as well as the depot. Because recyclables will be collected at the same time as regular garbage there should be little additional staff time required during the collection cycle. A small amount of additional time will be required at the storage site when emptying the recycling trailer as the bags will need to be unloaded separately from the regular garbage. Shipping the material will also require some staff time for loading and organising the trailer.

Additional staff time will also be required to transport, organise, and crush waste glass.

3.11. *Promotional Strategy*

Given the need to haul undensified recyclables to Thompson under the current plan, a high level of co-operation from local residents and businesses in flattening boxes, plastic bottles, and cans is very important. Good educational materials providing clear instructions during program implementation will be important to maximise participation rates.

See Appendix B for a summary of promotional options and ideas. Again, the Regional Recycling Co-ordinator is available to assist Gillam in developing a promotional strategy.

3.12. *Residential Recycling Program Revenue & Expense Projections*

3.12.1. Capital Costs

Capital costs for the Gillam residential recycling program will include:

Table 4 - Residential Recycling Program Projected Capital Expenses

Capital Item	Estimated Cost	Taxes	Total Cost
A trailer to pull behind the garbage truck for the collection of recyclables. This trailer would also serve as a recycling depot.	$10,000	$1,400	$11,400
Shipping the Trailer to Gillam	$1,500	$210	$1,710
Large Storage Bags (100 bags x $21/bag)	$2,100	$294	$2,394
Decals for the Trailer	$200	$28	$228
Depot Signage	$300	$42	$342
Blue Boxes (550@$10/ea.)	$5,500	$770	$6,270
TOTAL CAPITAL COSTS	$19,600	$2,744	$22,344

The Table above is based on all capital costs being covered by the Town of Gillam. An application for funding to help cover up to 2/3 of the costs identified above is in the process of being submitted.[3] If the application is successful, up to $14,370 may be available to cover these capital expenses.

Glass Crushers

Because glass crushers will be used infrequently by any one community, it makes sense for several communities to purchase one of these machines jointly and share its use. It has been proposed that two glass crushers be purchased jointly by the seven communities establishing recycling programs through the regional recycling network. The estimated cost of two crushers and two sets of replacement blades is $8,000. It is currently expected that each community would contribute equally although the actual contribution from each community may be adjusted in final negotiations.

Some of the seven communities involved in the regional network may decide not to be involved in the purchase of the glass crusher. If this is the case, the cost of the crusher(s) would need to be spread over fewer communities or other communities will need to be approached. For budgeting purposes, it will be assumed that at least seven communities will be involved in the collective purchase of the glass crusher(s).

[3] Barb McIvor, the Regional Recycling Co-ordinator, is in the process of completing an application to the Green Infrastructure Fund offered by the Federal Government. The proposal is scheduled to be submitted prior to October 31, 2001.

3.12.2. Annual Amortised Costs

The following Table provides a breakdown of the total annual amortised costs of the capital equipment required by the recycling program.

Table 5 - Residential Recycling Program Amortised Capital Costs

ITEM	COST	SERVICE LIFE	ANNUALIZED COST
Recycling Trailer	$11,400	7	$2,115
Shipping Costs	$1,710	7	$317
Large Storage Bags	$2,394	1	$2,394
Decals for the Trailer	$228	3	$87
Depot Signage	$342	3	$130
Blue Boxes	$6,270	3	$2,389
Glass Crusher (1/7th of the cost)	$1,143	5	$279
TOTALS	$23,487		**$7,712**

For the purposes of the financial projections, the large collection bags are projected to last 1 year (or 10-12 return trips to TRC) before being replaced. If the bags last longer than one year the annual cost to replace these bags will be reduced. As this single purchase represents a significant portion of the overall projected annual amortised capital costs, extending the life of these bags could have a major impact on annual program costs.

3.12.3. Operating Costs

The following Table provides a breakdown of projected operating costs.

Table 6 - Residential Recycling Program Projected Operating Costs

	# of Units	Unit Cost	Total Annual Cost
LABOUR COSTS			
Curbside Collection	Existing staff will be used		
Depot Maintainance	8 hrs/mo.	$20 /hr	$ 1,920
Sorting labour	Sorting will be done in Thompson		
Loading Hydro Trucks	4 hrs/mo.	$20 /hr	$ 960
Glass Crushing	4 hrs/mo.	$20 /hr	$ 960
Total Labour Costs			$ 3,840
OTHER COSTS			
Promotional Materials (@ $0.50/pp/yr)	1300	$ 0.50	$ 650
Storage Costs (rent, etc.)	Stored in Hydro Yard & at Landfill		
Transportation Costs	In-Kind Contribution From MB Hydro		
TRC Net Processing Costs	72 T/yr	$20/T	$ 1,440
TRC Supplemental Sorting Charge	72 T/yr	$30/T	$ 2,160
Supplies			$ 500
Administration Costs	2 hrs/mo.	$25 /hr	$ 600
Total Other Costs			$ 5,350
TOTAL ANNUAL OPERATING COSTS			**$ 9,190**

3.12.4. Projected Revenue

The following Table provides an estimate of the total revenue available through the MPSC. Revenue from the sale of material is not included as it is used by TRC to minimise the processing fee they need to charge.

Table 7 – Residential Recycling Program Projected Revenue

Projected Recovery		72 tonnes
MPSC Standard Support Payment		$152 /T
Total Revenue from Standard Support Payment	$	10,944
MPSC Northern Assistance		$40 /T
Total Revenue from MPSC Northern Subsidy	$	2,880
TOTAL COMBINED REVENUE	$	13,824

It should be noted that the MPSC Northern Assistance is available based on demonstrated need only. Communities must apply for it independently from the Standard Support payment and be able to demonstrate that their program costs are sufficiently high to justify the additional funding support.

3.12.5. Residential Recycling Program Financial Summary

The following Table summarises the financial projections outlined above.

Table 8 – Residential Recycling Program Financial Summary

PROGRAM COSTS		
Projected Annual Amortised Capital Costs	$	7,712
Projected Annual Operating Costs	$	9,190
Total Annual Costs	$	16,902
PROGRAM REVENUE		
Annual Revenue from MPSC Standard Support Payment	$	10,994
Annual Revenue from MPSC Northern Subsidy	$	2,880
Total Revenue	$	13,874
NET RECYCLING PROGRAM REVENUE (COST)	**$**	**(3,028)**

Note: Based on the projected program costs, Gillam should qualify for the $40 per tonne Northern Subsidy as projected costs are higher than projected revenues.

Based on the information summarised in Table 8, operating the recycling program in the Town of Gillam will cost approximately $3,000 per year. A few points that should be considered regarding the projected net cost of the recycling program are:

1. Some of these costs represent a reallocation of existing expenses (e.g. labour costs for depot maintenance, shipping, and glass crushing, and administrative costs).
2. TRC has waived the $20 per tonne processing fee for the first 24 tonnes of material sent to them for processing during 2001 or 2002. This will result in savings of $480 during the first year of the program.
3. Funding may be received to help cover the costs of the capital items to be purchased. This would result in reduced actual amortised capital expenses.
4. Investing money in waste diversion programs will help extend the life of the local landfill. This will help save the Town money in the long-term by defraying the expenses associated with new landfill construction.

4. Used Oil

The Manitoba Association for Resource Recovery Corp. (MARRC) has been established to help communities recycle used oil, used oil containers, and oil filters. They pay $.17 per litre in the Northern Region to registered carriers to deliver these products to an approved end-user. If the oil is burned on-site in an approved oil burner, $.08 per litre is paid.

To collect these products, MAARC has traditionally provided assistance to communities to establish "Eco-Centres"- which are 10' x 24', prefabricated depots. Each Eco-Centre costs approximately $25,000 with the community expected to cover 50% of the cost.

Through the current efforts that have been undertaken to develop expanded recycling options for northern communities, however, MARRC is now able to assist communities establish scaled down used oil collection depots or "mini" Eco-Centres. These mini eco-centres are much smaller and less expensive (only $6,000) compared to a full-size eco-centre. MARRC is still committed to covering 50% of the costs of establishing the mini depots up to a maximum of $3,000.

Manitoba Conservation has also approved the use of existing facilities by local residents if all guidelines and regulatory standards have been met by the facility.

See Appendix G for a detailed description of MARRC and an outline of their commitment to assist northern communities.

4.1. *Generation Estimates*

Table 9 provides an estimate of the amount of used oil, filters and containers that are generated in Gillam every year. Projected recovery levels based on a capture rate of 50% are also provided. It should be noted that achieving a capture rate of 50% may take a few years until the program has matured and the local population is familiar with how it operates.

Table 9 - Estimated Generation of Used Oil, Filters, and Containers

	Per Capita Annual Generation	Local Population	Total Estimated Annual Generation	Projected Capture Rate	Total Projected Annual Recovery
Used Oil	4 litres	1300	5200 litres	50%	2600 litres
Used Filters	0.4	1300	520	50%	260
Used Containers	0.17 kgs	1300	221 kgs	50%	111 kgs

The estimates provided in Table 9 are based only on what is generated from the 25% "do-it-yourself" portion of the local population. The oil, filters, and containers generated at service centres and other large commercial generators are not included in these estimates as much of this material is already being collected.

4.2. *Collection System*

4.2.1. Establishing a Mini Eco Centre

It is now possible for Gillam to consider establishing a stand alone mini Eco Centre for use by local residents. This site would need to meet the following conditions:

1. A ULC approved tank is used to collect the oil.
2. The site must include drums (minimum 16 gauge) for collecting both used oil filters and used oil containers.
3. The site must be located on a concrete pad.
4. The depot is staffed while open to the public.
5. All other terms and conditions of an oil depot licence are met.

See Appendix H for provincial guidelines for establishing a used oil collection depot.

4.2.2. Using an Existing Facility

Manitoba Conservation has endorsed the idea of opening existing collection facilities for use by local residents and small businesses as long as all of the conditions discussed above for opening a mini-eco centre are met. As Manitoba Hydro has an existing depot to collect the used oil the organisation generates, they may consider opening up the site to the general public.

Using the existing collection infrastructure may be the most affordable option for Gillam as long as the costs of meeting the standards established for the licence will not require expensive upgrades.

4.3. *Equipment Requirements*

4.3.1. Used Oil Collection Tank

A used oil tank will be required to collect and store the used oil generated by residents and small commercial establishments in the community.

Specifications include:

- Double-walled Containment
- ULC approved
- Installs on concrete surface
- Minimum 2500 litre capacity

The sample unit shown here is made in Manitoba and conforms to the required specifications. The contact information for potential suppliers is provided in Appendix D.

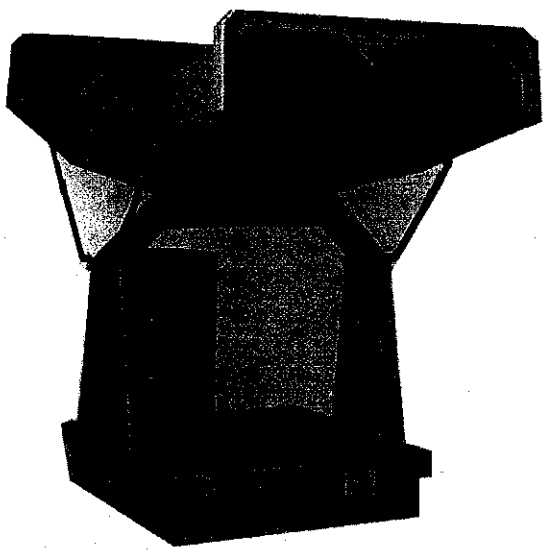
4.3.2. Used Oil Filter & Container Collection Equipment

Used Oil Filters - Used oil filters must be collected in 45-gallon drums made of 16 gauge steel or stronger. Used filters must be stored in these drums at all times.

Used Oil Containers - Used oil containers can also be collected in a 45-gallon drum. When the drum is full, however, it would be possible to transfer the containers into bags for storage until the registered carrier arrives and removes them.

The drums used to collect the filters and the containers must be stored indoors at all times. If there is no structure available near the eco-centre site to store the drums, an Outdoor Secondary Containment Storage System can be purchased (see Picture 4). Supplier information can be found in Appendix D.

Picture 4 – Outdoor Secondary Containment Storage System



4.3.3. Concrete Pad

Both the used oil tank and the drums to collect used filters and containers must be placed on a concrete pad.

4.4. *Removal/Disposal Options*

4.4.1. Commercial Hazardous Waste Collection Services

There are several commercial hazardous waste collection services that collect used oil products from Eco-Centres in Manitoba. A complete list of the carriers is provided in Appendix I. The companies most active in northern Manitoba to date have been Enviro-West Inc. (Winnipeg, MB) and Northern Environmental Recovery (Creighton, Sask.).

As mentioned above, these carriers are paid $0.17 per litre to transport used oil products to an approved end-user. Depending on the costs they incur in travelling to a community, these carriers sometimes rebate a portion of the transportation subsidy that they are paid. These arrangements, however, are entirely between the carrier and the operator of the depot.

4.4.2. Used Oil Burners

Manitoba Conservation can grant a licence to a commercial operation to burn used oil generated off-site. A formal application must be completed and sent for review and approval to Manitoba Conservation. Contact Manitoba Conservation for details (See Appendix C for the relevant contact information).

While this option could be considered if a large commercial operation with a high-volume furnace is locally available, most communities will likely opt to have their used oil collected by a registered carrier.[4]

4.5. *Training*

Acquiring a license to operate a mini depot will require the site to be staffed by trained employees when open to the public. MARRC will provide the training to the staff person hired to operate and maintain the depot. The training will involve a two-day session in a central location, likely Thompson.

4.6. *Regulatory Requirements*

Gillam will be required to obtain a licence from Manitoba Conservation to operate a used oil collection depot. Even if an existing facility is used, a new licence will need to be applied for to make sure it meets the requirements of a public used oil collection depot. A copy of the application form that needs to be completed and reviewed by Manitoba Conservation has been provided in Appendix J. A sample licence has also been provided (See Appendix K).

[4] There is currently only one formal licence that has been issued for the burning of waste oil generated off-site at a facility in northern Manitoba (Tolko Industries which is located near The Pas, MB).

4.7. *Used Oil Revenue & Expense Projections*

4.7.1. Projected Capital Expenses

The following Table provides an overview of the expected capital expenses associated with establishing a mini Eco-Centre.

Table 10 – Used Oil Collection System Capital Expenses

Capital Item	Estimated Cost	Taxes	Total Cost
Used Oil Collection Tank	$2,830	$396	$3,226
Shipping the Tank to Gillam	$500	$70	$570
Drum Containment Unit (if required)	$1,950	$273	$2,223
Concrete Pad (if new one required)	$1,000	$140	$1,140
Depot Signage	$250	$35	$285
TOTAL CAPITAL COSTS	$6,530	$914	$7,444

Total capital costs for establishing the mini-depot would total $7,444 if a drum containment unit was required (if no existing indoor storage space is available) and if a new concrete pad must be poured. MARRC will pay 50% of the total up-front capital costs up to a maximum of $3,000. This would result in a net outstanding balance of $4,444 to be covered by the Town of Gillam.

If indoor space with a concrete floor can be found as a site for depot, capital costs drop to $4,081 (including taxes). MARRC would cover 50% of this cost which would leave an outstanding balance of $2,041 to be covered by Gillam.

4.7.2. Annual Amortised Costs

The following Table provides a breakdown of the total annual amortised costs of the capital equipment required by the used oil recycling system.

Table 11 – Used Oil Collection System Amortised Capital Costs

Item	Cost	Service Life	Annualised Cost
Used Oil Collection Tank	$1,613	7	$299
Shipping	$285	7	$53
Drum Containment Unit	$1,833	7	$340
Concrete Pad	$570	7	$106
Depot Signage	$143	3	$54
TOTALS	$4,444		**$852**

MARRC will also pay a10% return on capital on the balance of the money spent by a community on capital items (up to a maximum of $300/yr). In the scenario outlined in

Table 11, the maximum of $300 per year would be provided to the Town of Gillam as part of this rebate program.

4.7.3. Projected Operating Expenses

The projected operating costs are based on staffing the depot once a week for 4 hours. The depot must be staffed during the time it is open to the public.

Table 12 – Used Oil Collection System Projected Operating Costs

	# of Units	Unit Cost	Total Annual Cost
Labour Costs			
Staffing the Depot	16 hrs/mo.	$20 /hr	$ 3,840
Total Labour Costs			$ 3,840
Administration Costs			
Administration Cost	1 hrs/mo.	$ 25	$ 300
Promotional Materials ($0.10/pp/yr)	1300	$ 0.10	$ 130
Total Administration Costs			430
TOTAL ANNUAL COSTS			**$ 4,270**

4.7.4. Projected Revenue

Table 13 – Used Oil Collection System Projected Revenue

MAARC Operating Subsidy	$	2,000
10% Return on Investment		300
TOTAL ANNUAL REVENUE	**$**	**2,300**

4.7.5. Used Oil Collection System Financial Summary

The following Table summarises the financial projections outlined above.

Table 14 – Used Oil Collection System Financial Summary

PROGRAM COSTS		
Projected Annual Amortised Capital Costs	$	852
Projected Annual Operating Costs	$	4,270
Total Annual Costs	$	5,122
PROGRAM REVENUE		
Annual MARRC Operating Subsidy	$	2,000
Annual MARRC Return-On-Capital Payment	$	300
Total Revenue	$	2,300
NET SYSTEM REVENUE (COST)	**$**	**(2,822)**

Based on the information summarised in Table 14, operating the used oil collection system in Gillam will cost approximately $3,000. A few points that should be considered regarding the projected net cost of the system are:

1. Some of these costs represent a reallocation of existing expenses (e.g. administrative salaries).
2. If existing personnel can be reassigned to staff the collection depot the net increase in cost to the Town would be reduced significantly.
3. The amortised capital expense figure is based on Gillam needing to purchase all of the equipment identified in Table 10 as well as pouring a new concrete pad. The annual amortised capital would reduced if not all of these expenditures are required.

5. Used Tires

5.1. *The Tire Stewardship Board*

The Tire Stewardship Board (TSB) operates a program that provides a financial payment to municipalities for recycling scrap tires. They pay a $0.50 per tire storage fee for all tires collected by a community. They currently arrange for tire collection from major centres in Northern Manitoba in the spring and fall of each year with smaller communities serviced less frequently.

5.2. *Estimated Used Tire Generation Rates*

The North American population generates approximately one tire per person per year. Applying this figure to the population of Gillam results in an annual generation estimate of 1300 tires per year for the community.

5.3. *Tire Collection*

Tires are currently collected at the landfill in Gillam. They are sorted by the people operating the garbage truck and are dropped off by local residents and businesses. Nothing about the current collection/storage system would need to change.

It may be possible for the crew operating the trailer collecting residential recyclables to also pickup tires on their route. There will be space at the back of the trailer to store a range of bulky items including scrap tires.

5.4. *Transportation*

There are currently two options for Gillam to have the collected tires removed from the community: 1) use the existing system and let the TSB make arrangements with the tire processors to come to Gillam and remove the tires or, 2) ship the tires to the Thompson landfill taking advantage of the transportation subsidy offered by the TSB.

5.4.1. Existing System

The TSB is ultimately responsible for making sure that tires are removed from Gillam. The system they have established offers incentives to tire processors to come in and clean up tire piles from communities throughout Manitoba. This procedure requires very little involvement on the part of Gillam as the community's only obligation is to provide a storage area where tires can be collected and stored.

5.4.2. TSB Transportation Subsidy

The TSB has agreed to provide a transportation subsidy to assist remote communities move their tires into a central location instead of waiting to have the tires picked up by a processor. The details of the arrangement being offered to communities in Northern Manitoba are as follows:

1. A subsidy will be provided by the TSB to cover the cost of shipping tires to Thompson. The subsidy will be based on the percentage of the load that is comprised of tires. For example, if 100% of the weight of the load is tires, the TSB

will reimburse the entire bill. If 50% of the weight is tires and 50% is other materials, then the TSB will pay 50% of the transport bill.

2. Scale tickets of the truck both empty and full must be provided to the Tire Stewardship Board. An average weight will then be applied to the total number of tires delivered to get a total tire weight for the load. This will then be compared with the overall load weight to arrive at the percentage determination.
3. Tires will be delivered to the Thompson landfill where a tire storage area already exists. Staff unloading tires at the landfill will provide written confirmation of the number and type of tires delivered.
4. The TSB will **not**, however, pay for the labour required for loading the tires in Gillam.
5. The information that the community will need to provide to the TSB will include:
   - Where the tires are from
   - How many tires of each type were delivered (a copy of a form recording this info provided by staff at the Thompson Landfill)
   - Copies of the scale tickets of the truck weight both empty and full
   - Date of delivery
   - A copy of the bill of lading for the load.

Shipping tires to Thompson using the system described above is relatively complicated and time consuming compared to simply waiting for a processor to come to the community and collect the tires. There is also little financial incentive for Gillam to organise shipping and pay for the labour to load tires when a processor will eventually assume these costs.

The only situation where shipping tires to Thompson would be advantageous to Gillam would be if the tire pile has grown too large (i.e. the processor is not collecting them on a timely basis) and they must be removed for safety or public health reasons.

The financial analysis provided below assumes that Gillam will allow their tires to be removed by a processor under the existing system.[5]

5.5. *Projected Costs and Revenues*

5.5.1. Projected Capital Cost

There are no capital costs associated with collecting used tires as they are simply stored outside at the landfill.

[5] A third option involving a per tire payout for tires delivered by remote communities to the Thompson Landfill is being considered by the TSB. More information on this option will be provided by the Regional Recycling Co-ordinator when the TSB has completed its analysis of the viability of this option.

5.5.2. Projected Operating Costs

Table 15 - Tire Recycling System Projected Operating Costs

	# of Units	Unit Cost	Total Annual Cost
Labour Costs			
Loading Tires	Processor is responsible		
Other Costs			
Transportation CostsTo Processor	Processor is responsible		
Administration Costs	0.25 hrs/mo.	$25 /hr	$ 75
Promotional Materials ($.10/pp/yr)	1300	$ 0.10	$ 130
TOTAL ANNUAL COSTS			**$ 205**

5.5.3. Projected Revenues

Table 16 - Tire Recycling System Projected Revenue

Tire Board Subsidy (@ $.50/tire)	1300 tires/yr	$ 650
Transportation Subsidy		$ -
TOTAL ANNUAL REVENUE		**$ 650**

5.5.4. Tire Recycling System Financial Summary

The following Table summarises the financial projections outlined above.

Table 17 – Tire Recycling System Financial Summary

PROGRAM COSTS		
Projected Annual Amortised Capital Costs	$	-
Projected Annual Operating Costs	$	205
Total Annual Costs	$	205
PROGRAM REVENUE		
TSB Per Tire Rebate	$	650
TSB Transportation Subsidy	$	-
Total Revenue	$	650
NET SYSTEM REVENUE (COST)	**$**	**445**

Based on the information summarised in Table 17 establishing an effective system for collecting tires will net the Town of Gillam approximately $450 per year.

One point that should be considered regarding the projected net cost of the system is that some of these costs represent a reallocation of existing expenses (e.g. administrative salaries).

6. Scrap Metal

There is a designated area at the Gillam landfill for collecting scrap metal although it has been difficult to get someone to pick it up because of the remoteness of the site. The fact that refrigerators and freezers are mixed into the pile has also been problematic due to the requirement to have the refrigerant removed by a certified technician. As a result, a large amount of scrap metal has accumulated over the last number of years.

6.1. *Available Scrap Metal Products*

There are two main categories of discarded products made of metal in most northern communities:

1. The first category includes large items made mostly of various types of metal (i.e. derelict cars, appliances, etc.).
2. The second category consists of miscellaneous non-ferrous and ferrous loose scrap such as aluminum siding, metal shelving, copper pipes, etc.

Often, it is the larger, more easily transported items that are recycled (e.g. derelict cars). This poses a problem in that the automobiles represent the most easily handled, and therefore most valuable, form of scrap metal. Once these large, heavy products have been removed it becomes less feasible economically to collect and compact the rest of the scrap due to the higher handling costs associated with handling many small, relatively light materials. It is important, therefore, to average out the costs by recycling all metal products together.

6.2. *Chloroflourocarbon (CFC) Removal*

Refrigeration equipment that contains CFCs and other pollutants requiring specialised removal procedures will need to be segregated from other scrap metal. These units will then need to be properly decommissioned.

Removing the CFCs could either be done in Gillam or in Thompson. The cheapest option would be to have a local person with the required certification process the refrigerant. Manitoba Hydro has agreed to help the Town of Gillam with this process as they have registered technicians who are trained to remove CFCs located in Gillam. Contact Kelly Bryll at the Manitoba Hydro Office in Gillam for more information (204) 652-5155.

6.3. *Scrap Metal Removal Options*

The high costs of transporting scrap metal to southern Manitoba make it unprofitable for private companies to remove the local stockpile simply for the value of the material. This is particularly true in situations like Gillam where most of the available derelict cars have already been removed. Unless metal prices increase dramatically, or a cost-effective backhaul arrangement becomes available, a subsidy will likely be required to remove the scrap metal from the community.

The two options that currently exist for removing scrap metal include hauling scrap to the Thompson landfill loose or paying a company to travel to Gillam to compact and remove the metal.

1. Shipping to Thompson – Scrap metal collected at the Thompson landfill realises net revenue of approximately $35 per tonne.[6] This is possible because of the large volumes centralised at the one location, the paved road access, and the relative convenience of Thompson compared to more distant communities. As such, metal processors are willing to pay to access this material.

   Given this situation, shipping loose scrap metal to the Thompson landfill may be a cost-effective option for Gillam. It would require loading gravel trucks (or equivalent type of vehicle) with a front-end loader. Refrigeration equipment would need to have CFCs removed prior to shipping.

   A small per tonne payment may even be paid for scrap metal received in Thompson. This possibility, however, has not been finalised and would need to be to be negotiated when shipments are planned.

2. Hiring a Company to Compact & Remove the Scrap Metal

   The other option would be to contract a company to travel to Gillam and remove the accumulated material. Companies that may be available to remove the metal include:

   C-Bros. Metal Inc. - A company based in B.C has a mobile crusher with an attached grapple that services many small communities in Alberta and Saskatchewan including some communities in Northern Manitoba. Scrap metal is first compacted into cubes that are then shipped on trailers to scrap yards. A company representative has indicated that there would be charge for crushing and transporting the scrap at a processor in southern Manitoba. C-Bros. has been asked to provide financial details on the costs of their service with a response still pending.

   Gary Burziuk – Mr. Burziuk hauls scrap metal for Mandak Metal in Selkirk. The equipment his company uses can flatten, but not compact, material. They are available to quote on the removal of the scrap metal from Gillam.

   Repeated attempts to get a quote from these companies for the work of removing metal from the Gillam landfill have not been successful to date. Contact information for the companies listed above is provided in Appendix C.

6.4. *Compaction*

For all transportation options, derelict cars and other metal products must be compacted as much as possible in order to fit the maximum amount of scrap on every load. This is particularly important for non-auto scrap metal as these materials tend to be bulky and awkward, if not impossible, to load on flat deck trailers unless they have been flattened and compacted. The weight of a full load of uncompacted metal is also much less than a full load of compacted material.

Metal processors in the south can and do send mobile compactors to northern communities although it is only worth their while if a large amount of material is available.

[6] A recent decline in the market price for scrap metal may have reduced this figure.

Also, the available metal must have already been centralised for scrap processors to consider sending a compactor.

6.5. *On-Going Collection System*

The existing system for segregating scrap metal at the landfill should be sufficient provided:

1. Fridges and freezers are kept separate from other metal in the future,
2. An on-going system is in place to remove refrigerant from old fridges and freezers, and
3. A predictable system can be developed for loading and transporting the scrap metal to southern Manitoba. Perhaps one of the companies discussed above could make an annual or biennial trip to Gillam to remove the scrap metal.

It should be noted that the Provincial Government has indicated a strong interest in developing viable systems for removing scrap metal from northern communities. If a pilot program to test possible removal systems is implemented, new opportunities to remove scrap metal from the Gillam landfill may become available.

New information about scrap metal recycling options will continue to be provided to the Town of Gillam by the Regional Recycling Co-ordinator.

6.6. *Projected Scrap Metal Generation*

It is difficult to project the amount of scrap metal that will be generated at the Gillam landfill in a given year.

6.7. *Scrap Metal Annual Revenue & Expense Projections*

No information on the revenue and expenses associated with removing the scrap metal is available at this time because of the large number variables and the lack of quoted prices for contracted removal work. As such, no figures have been provided in the Program Summary section of this document.

7. Program Summary

The following Tables summarise the combined operating cost and revenue projections for the residential recycling program, used oil collection system, and the tire recycling program.

7.1. Combined Costs and Revenue Summary

7.1.1. Combined Program Costs

Table 18 – Combined Recycling Program Costs

		Total Annual Cost
LABOUR COSTS		
Residential Recycling System	$	3,840
Used Oil Collection System	$	3,840
Tire Recycling System	$	-
Total Labour Costs	$	7,680
CAPITAL COSTS		
Residential Recycling System	$	7,712
Used Oil Collection System	$	852
Tire Recycling System	$	-
Total Labour Costs	$	8,564
OTHER COSTS		
Promotional Materials	$	910
Storage Costs	$	-
Transportation Costs	$	-
TRC Net Processing Costs	$	1,440
TRC Supplemental Sorting Charge	$	2,160
Supplies	$	500
Administration Costs	$	975
Total Other Costs	$	5,985
TOTAL ANNUAL COMBINED COSTS	**$**	**22,229**

7.1.2. Combined Program Revenue

Table 19 – Combined Recycling Program Revenues

Residential Recycling Program	$	13,824
Used Oil Collection System	$	2,300
Tire Recycling Program	$	650
TOTAL ANNUAL REVENUE	**$**	**16,774**

7.1.3. Financial Summary

Table 20 – Overall Financial Summary

PROGRAM COSTS		
Total Annual Costs	$	22,229
PROGRAM REVENUE		
Total Revenue	$	16,774
NET SYSTEM REVENUE (COST)	**$**	**(5,455)**

Based on the projections in this document, it will cost the Town of Gillam approximately $5,500 to provide recycling services for residential recyclables and used oil to local residents, as well as moving tires from the local landfill to Thompson on a regular basis.

Some important issues to consider when analysing these projections include:

1. The estimates provided above are conservative figures and there are several operational issues that may reduce the actual cost to the Town.
2. Funding applications are in the process of being prepared to cover capital expenses associated with capital requirements of the residential recycling program and the used oil collection system. If these proposals are successful, a significant reduction in the estimated $7,700 per year in amortised capital costs would be expected.
3. The revenue from the residential recycling program is based on an established program with a large number of local residents actively participating. Until this level of activity has been achieved, less material will be collected and shipped resulting in lower revenues. Alternatively, if capture rates exceed the projected 50% in the long term, additional material will be collected and revenues will increase.
4. Reducing the amount of material sent for disposal will save the Town money through extending the life of the landfill.

7.2. *Employment Summary*

Based on the projections outlined above, a total of 40 person hours per month will be required to operate the identified recycling programs (in addition to the existing staff that will be used). This breaks down as follows:

Table 21 - Total New Employment

Residential Recycling Program	24 hrs/mo.
Used Oil Collection System	16 hrs/mo.
Tire Recycling Program	0 hrs/mo.
TOTALS	**40 hrs/mo.**

A total of 128 hrs per month of existing Public Works staff time has also been assigned to the recycling program for both the curbside and cardboard collection activities. Up to 3.25 of existing administrative time has also been allocated to manage the various recycling program components.[7]

Table 22 - Total Existing Staff Time Assigned to the Recycling Program

TOWN PUBLIC WORKS CREW	
Curbside Collection (2 people)	96 person hrs per mo.
Cardboard Collection (2 people)	32 person hrs per mo.
Total Works Crew Hours	128 person hrs per mo.
ADMINISTRATIVE	
Total Administrative Staff Time	3.25 person hrs per mo.

The wage costs of existing Town staff that will be collecting material have not been including in program expenses as this activity will not be add a great deal of incremental time. The Administrative time, however, ***has*** been charged to program expense as these activities represent a distinct piece of additional work.

7.3. *Promotion & Education (P&E) Budget*

Budgets for promoting the recycling initiatives have been included in the projected annual operating costs for each component. Based on these projections, a total of $910 would be available to promote recycling and educate local residents about how each of the recycling initiatives work. This money should be allocated to implementing the various P&E activities outlined in Section 2.4.

[7] Having an active and engaged Community Waste Minimisation Committee can greatly reduce the amount of time required by administrative personnel to oversee the recycling program operations.

Table 23 – Annual Promotion & Education Budget

Residential Recycling Program	$650
Used Oil Collection System	$130
Tire Recycling Program	$130
TOTALS	**$ 910 /yr**

It will be difficult to achieve acceptable diversion rates without spending money in promoting recycling in your community. As the amount of revenue generated by the program is directly related to the number of tonnes of material collected, money spent on P&E activities should be considered an investment that will pay for itself through improved recycling rates.

This issue will be particularly important during the first year of the program as it will be important to ensure that the revenue projections outlined in this report are met as soon as possible. Without achieving these recycling rates additional money will need to be spent by the Town to cover the associated shortfall.

8. Other Waste Reduction Opportunities

8.1. Composting

Diverting compostable materials from the garbage can have a significant impact on the amount of waste that ends up in the landfill. According to a study conducted for the Manitoba Product Stewardship Corporation, approximately 23% of the total waste stream could be diverted from the landfill through composting.[8]

Composting not only reduces the amount of waste being landfilled but it can also produce a nutrient-rich growing medium. As good soil is hard to come by in many northern communities, composting could help expand the available options for gardening and landscaping.

8.1.1. Backyard Composting

One component of a composting strategy could include the promotion of backyard composting by local residents. This would see local residents install composters in their backyards where compostable kitchen scraps and yard waste would be deposited. A backyard composting guide produced by Resource Conservation Manitoba is provided in Appendix L.

8.1.2. Large-Scale Composting Operation

Another component would be to establish a centralised composting pile at the local landfill site. Local residents would be encouraged to drop off all leaf and yard waste at the composting pile instead of in the regular garbage area.

Several Manitoba communities have established successful large-scale composting sites and may be available to help answer any questions you may have. Contact Resource Conservation Manitoba for more information (see Appendix C for contact information).

8.2. Second-Hand Store

Space may be available in a local building for a local non-profit organisation to set-up a second-hand store. Material such as clothes and books could be donated by local residents which would then be resold to raise money for the charity. The viability of this option would depend on finding low cost retail space and keeping operating costs to a minimum. Setting up this type of operation may, however, provide a local charity with a new, and potentially profitable, fundraising opportunity.

[8] Manitoba Product Stewardship Corporation,"Rural Residential Waste Composition Study 2000", earthbound environmental Inc., February, 2001, p. 11.

8.3. *Household Hazardous Waste*

The Government of Manitoba has implemented a process which will result in the development of stewardship programs for a wide range of hazardous materials generated in the residential sector. These materials will fall into 11 categories:

1. Batteries
2. Consumer paint products
3. Corrosives (such as oven cleaners and drain cleaners)
4. Liquid fuels
5. Domestic pesticides
6. Pharmaceuticals (unused medications and hypodermic needles)
7. Pressurised-flammable gas containers (such as propane BBQ tanks and single use tanks)
8. Solvent and flammable liquids (such as gasoline, anti-freeze, and paint strippers)
9. Swimming pool chemicals
10. Consumer electrical and electronic equipment
11. Products containing mercury (includes thermometers and fluorescent lighting)

The Executive Summary that describes the initiatives under way which is provided in the Public Information Section that of the Household Hazardous Waste Area of the Pollution Prevention Branch Website is provided in Appendix M.

More information on the process, timelines, objectives, etc. is available online at:

http://www.gov.mb.ca/conservation/hhw/public.html

Contact information on this issue at both the provincial and federal governments is provided in Appendix C.

8.4. *Reuse Area at the Landfill*

Creating a separate area at the local landfill where people can drop off reusable items (e.g. used building materials, furniture, paint) could help divert good quality material. It would also provide a cheap source of potentially reusable items for people looking for low-cost options for a variety of applications.