Scrap Metal Recycling in Remote Northern Communities

A PILOT PROJECT IMPLEMENTATION PLAN

Prepared for:

Aboriginal & Northern Affairs
(Government of Manitoba)

and

The Government of Nunavut

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1. Introduction

The complicated logistics and high cost of collecting and removing scrap metal has traditionally made it difficult to recycle this material from northern communities. In an effort to develop solutions to the barriers that exist and establish a system for recycling scrap metal that could be more financially sustainable in the long term, the Governments of Manitoba and Nunavut have contracted *earthbound environmental Inc*. to develop a plan to conduct a scrap metal recycling pilot project in two communities in Northern Manitoba and two in Nunavut.[1]

The primary goals of this pilot project are to:

1. Clean up the scrap metal that has accumulated in the communities included in the study,
2. Develop and test options for overcoming barriers to cost-effectively recycling scrap metal in northern and remote communities, and
3. Demonstrate the job creation potential of establishing viable scrap recycling initiatives.

If funding is successfully secured, the Pilot Project will collect, bale, and ship to an end market the scrap metal that has accumulated in Gillam, Churchill, Rankin Inlet, and Coral Harbour. The project would run for eight months during the spring, summer, and fall of 2003.

It should be noted that Garden Hill First Nation was originally included as one of the communities to be included in the study. However, Garden Hill First Nation is in the process of developing a business plan for an automotive repair centre/used part depot/scrap metal recycling centre for their community (see proposal in Appendix A). As such, the scrap

[1] Coral Harbour has recently been added to the list of pilot communities due to a request by the Government of Nunavut.

metal recycling program in Garden Hill will be developed separately from the pilot project to be implemented in Gillam, Churchill, Rankin Inlet, and Coral Harbour in 2003.

2. Methodology

2.1. Collecting Information

The information necessary to develop this plan was collected in a variety of ways:

1. Site visits were conducted in each of the communities in the study.[2]
2. Interviews and meetings with a wide variety of relevant people were conducted.
3. An internet and database scan was conducted to collect information about other scrap metal recycling initiatives that may have been implemented in other remote northern communities.

2.2. Regional Recycling

For the purposes of this study it is useful to think of recycling scrap metal from Gillam, Churchill, Rankin Inlet, and Coral Harbour from a regional perspective given that they are all linked along a single transportation corridor connecting southern Manitoba to Nunavut. As such, developing a regional system to coordinate the collection, transportation and processing of scrap metal from these communities could potentially improve the efficiency and cost-effectiveness of the system as a whole.

As mentioned above, Garden Hill has developed a plan to implement an independent scrap metal recycling program. However, there is a potential opportunity for Garden Hill to take advantage of the resources that will be developed as part of the pilot project (e.g. the availability of baling equipment in the north). Information regarding the experience gained through the Garden Hill project will also be included in the final report to be prepared at the end of the pilot project.

2.3. Lynn Lake Salvage

Lynn Lake Salvage has been recycling scrap metal in Northern Manitoba for eight years. Prior to moving to Lynn Lake the owner, Joey Barnes, had

[2] Gillam was visited in 2001 as part of a previous study earthbound conducted on recycling in Northern Manitoba.

worked at various scrap metal recycling companies in southern Manitoba for over 5 years. Joey Barnes has provided considerable input into the development of this plan.

2.4. Mandak Metals/MRM Gerdau

MRM Gerdau operate a steel rolling mill in Selkirk, Manitoba. This plant is a major employer in the area and recycles scrap metal from communities throughout the region. MRM Gerdau has established a separate company – Mandak Metals – to purchase and process the scrap metal used in the rolling mill operation.

Thanks to a commitment they have made to collect more scrap metal from remote communities in the north, representatives from Mandak have also been directly involved in the development of this plan.

Given the significant investment being made in this project by the Government of Manitoba, all metals recovered during the pilot are to be processed at the MRM/Gerdau smelter in Selkirk.

2.5. Sample Load From Rankin Inlet

To help confirm assumptions and identify issues that would need to be addressed in shipping scrap metal south from Nunavut, a sample load was transported out of Rankin Inlet in the summer /fall of 2002 as part of the research for this proposal. Several partners were involved in the process of preparing and transporting the load. The following steps were undertaken as part shipping the sample load:

1. Gardewine North dropped off an empty flat-bed trailer in Rankin Inlet when the first barge arrived in July.
2. The Hamlet (local government) loaded 13 vehicles on the trailer and prepared it for shipping.
3. Northern Transportation Company Ltd (NTCL) barged the trailer to Churchill and unloaded it at the dock
4. Omni-Trax arranged for the trailer to be loaded on a rail-car and transported to Thompson.
5. Gardewine accepted the trailer upon arrival in Thompson and transported it to a local drop off point.

The original plan included trucking the trailer to the Mandak plant in Selkirk. Due to the unstable nature of the load, however, the load was deemed not roadworthy and dropped off at the scrap metal area at the Thompson landfill.[3] In fact, stability of the load was a major problem throughout the trip (the load had to be straightened in Churchill before it could be loaded on the rail car).

The main lesson learned by shipping the sample load is that backhauling unbaled material on flat-deck trailers is not feasible due to the difficulty of keeping it stable and secure. As such, the plan outlined below recommends material be shipped to Churchill for baling and then transported directly to the Selkirk plant by rail.

It should be noted that all of the costs associated with collecting, loading, and shipping the sample load were absorbed by the companies involved as part of their contribution to this project.[4]

2.6. Units of Weight

The scrap metal industry still uses tons (not metric tonnes) as the standard unit of measurement. As such, all weights provided in this plan are in tons, unless otherwise stated.

[3] Mandak had a crew coming to clean up the Thompson scrap metal pile the following week so the material from Rankin was collected at that time.

[4] With the exception of a $160 bill for adjusting the load in Churchill charged by Mervs Excavating.

3. Background - Recycling Scrap Metal in the North

There is currently little recycling of discarded metal products such as old cars and appliances in northern communities. The high cost of transportation and the lack of an organized response to the issue mean that most of this material is simply abandoned in and around these communities or discarded in local landfills.

This situation is of concern from an economic, aesthetic, and environmental/public health perspective. The scrap value that these materials could capture if recycled is not being realised. This results in lost job opportunities and the loss of a potential revenue source. As well, improperly disposed of vehicles and refrigeration equipment negatively impact the natural beauty of northern communities. They also pose an ecological hazard as used oil, heavy metals, and CFCs can leak into the environment.

3.1. Key Barriers

The main barriers to recycling scrap metal (and other materials) in Northern Communities are:

1. High transportation costs to ship material to end-markets (and the relatively low value of most scrap metal).
2. High costs of shipping in and operating baling equipment.
3. Lack of sound waste management practices in some communities.
4. Concerns associated with shipping scrap metals on a backhaul in transportation containers that are used to ship food and other products that could be contaminated by residual materials.
5. Recycling has traditionally been a low priority for many people.

3.2. Improving Conditions for Successful Recycling

Several key factors are converging to make recycling in northern communities more viable:

- Residents in northern communities are increasingly concerned about the state of their local environment.

- Governments at all levels are increasingly committed to improving waste management practices.
- Transportation companies are realizing that they can play a key role in making recycling viable and are interested in contributing to the improvement of the communities that they serve.
- The Governments of Manitoba and Nunavut have made increased cooperation between their two jurisdictions a priority.

4. Benefits of Implementing a Scrap Metal Recycling Pilot Project

There are several important benefits that will result from implementing the scrap metal recycling pilot project described below. These include:

Environmental Improvement

The four communities included in the pilot will no longer be littered with scrap metal, which will provide ecological and environmental health benefits. Removing scrap metal, and derelict cars and white goods in particular, will protect surface water, ground water and soil quality by preventing potential spills of fuels, lubricants and coolants. The natural environment will also be improved aesthetically by cleaning up the scrap metal in and around the various communities. As well, possible injuries to children playing on or near derelict cars and other scrap metal will be prevented.

Economic Development

The three main benefits of the project from an economic development perspective are:

1. Jobs will have been created in the sample communities, and the data will be collected that would be required to evaluate the feasibility of establishing a self-financing scrap metal recycling program in other communities.
2. Local people will have been trained in scrap metal salvaging and operating a recycled materials program. This training and experience will provide valuable skills for other community businesses and waste management programs.
3. Local project managers will be contracted who will receive a per ton payment for their work thus stimulating the local economy. These contractors, as well as other local people that will be involved, will be well positioned to continue the recycling efforts after the end of the pilot project given the contacts that will have been made, the experience that will have gained, and the lessons that will have been learned.

Inbound Traffic on Hudson Bay Rail Line

The viability of the Hudson Bay rail line depends on maintaining and increasing traffic flows. Much of the flow is currently from the south to the Port of Churchill. As such, developing opportunities for hauling materials in the opposite direction (to the south along the rail line from the port) is a high priority. This project would generate an estimated $200,000 worth of south bound traffic for the line. On-going recycling efforts after the pilot has been completed hold the potential to provide additional revenue into the future.

Recycling Program Replication

Scrap metal removal systems will be established that can be replicated in other northern communities throughout Canada. Because programs will be developed for several different communities, the means to meet the challenges of scrap metal recycling in a variety of different circumstances will be developed. Key variables for minimising costs and maximizing revenues will also be identified, which will assist with the potential application of the models to remote communities in other areas of Canada.

Improve Local Waste Management Practices

Local waste management practices will have been improved through the implementation of the pilot project through:

- Separation of materials from other waste
- Establishing designated collection sites
- The coordination of recovery operations
- Identifying and separating hazardous wastes
- Establishing guidelines for local management of scrap metal

5. Project Components

Recycling scrap metal from Gillam, Churchill, Rankin Inlet, and Coral Harbour will involve the coordination of a variety of project components. The following discussion outlines how each of these project components will be addressed.

5.1. Available Scrap Metal Products

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

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

Often, if any metal recycling does occur, 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 “low hanging fruit” of the scrap metal business. 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 collecting, centralizing, and compacting all metal products together.

See Appendix B for pictures showing the types of materials available in the sample communities.

5.2. Segregating High Value Metals

Removing high value metals such as copper and aluminum from products such as cars could enhance the overall revenue generated from the sale of available scrap. It may also be economically attractive to separate out different parts that may have value such as catalytic converters and tires. Employing local people to sort and separate the higher value metals may substantially increase the value of the available material.

This is an important area where the proposed pilot project will be able to provide valuable data. Specifically, the financial information collected through the pilot will determine whether the higher value received for the high-graded materials is sufficient to cover most or all of the additional labour costs associated with these activities.

5.3. Baling Equipment

5.3.1. Baler

There are two baler options for use during the pilot project; 1) A custom-made baler manufactured by a northern scrap metal company may be available for processing the scrap collected during the pilot project, or 2) Mandak has indicated that a car-crusher could be available for the duration of the baling season. For planning purposes, it has been assumed that the custom-made baler will be used during the pilot project.

5.3.2. Loader

A crane or loader will be required on-site to load material into the baler. The salvage company hired to bale and ship the collected metal will be required to provide a suitable piece of equipment.

5.3.3. Operator

The contracted scrap metal recycling company will be required to provide an experienced equipment operator to drive the backhoe and oversee the operation of the baler. The cost of this operator is included in the hourly rates identified for the baler and loader.

Staff to be hired to work on the project from the local community will operate the baler.

5.4. Local Staff

It is anticipated that two local staff will be hired in each of the pilot communities from April to November of 2003 to assist with all aspects of the pilot project. During this period their duties will include:

- Collecting and preparing scrap metal in the local area
- Separating and storing non-ferrous metals from other metals

- Assisting with baling when the baler is in the area (Gillam and Churchill only)
- Assisting with shipping material to end markets
- Assisting with various aspects of the local residential recycling program

5.4.1. Official Employer

The local government in each community will be asked to serve as the employer for the staff people hired for the project (with funding support provided by Human Resources Development Canada – see below). As the official employer, they would be responsible for all workplace safety and health requirements during the period that the recycling staff are employed.

5.4.2. Training

Training in all aspects of scrap metal collection, baling, and shipping will be provided by Lynn Lake Salvage. The local staff will also spend 3 days at Mandak Metals operation in Selkirk where they will receive additional training on metals preparation and management. While in Selkirk these staff will also see the end-market for the material they are collecting so will better understand the entire scrap metal recycling process.

Training will also be provided in the proper capture and disposal of CFC's from refrigeration equipment. Local technicians will need to provide training (e.g. Manitoba Hydro employees or local mechanics). The Manitoba Ozone Protection Industry Association (MOPIA) may be able to assist in identifying companies and organizations in the north that could assist with training.

5.4.3. Human Resources Development Canada

An application will be submitted to Human Resources Development Canada (HRDC) for funding assistance through their Youth Employment Strategy. It is hoped that this funding assistance will cover the wage costs for the local staff to be hired in each of the communities for the duration of the pilot project.

5.5. Vehicles

For those times when local staff will require a vehicle (likely a ½ ton truck) during the period of the pilot it is anticipated that the vehicle will be provided by the local employer of contracted local manager. A Local Coordination Fee has been included in the project budget in each community.

5.6. Accommodations

The equipment operator and project management staff will stay at local hotels and eat at local restaurants when working in the pilot communities. Local staff will live in the community and not require any support with accommodations.

5.7. Transportation

5.7.1. Mode of Transportation

Material will be shipped on gondola cars to Mandak by rail from Gillam and Churchill. This material will be baled prior to shipping.

Scrap metal from Rankin Inlet and Coral Harbour will be shipped *unbaled* to Churchill by barge. When it arrives in Churchill it will be baled and added to the locally processed scrap for shipment south.

5.7.2. Transportation Containers

Large pieces of scrap metal (e.g. large equipment or vehicles) sent to Churchill from Rankin Inlet will be loaded directly onto the deck of the barge. Loose material, however, will be shipped in transport containers. Gardewine North has left three of these containers in Rankin in the fall of 2002 in anticipation of the pilot project proceeding in 2003.

5.8. Hazardous Wastes

All hazardous waste generated during the processing of the scrap metal collected in the pilot communities will be handled according to government regulations.

5.9. Other Recycling Related Activities

The Manitoba Government has established several product stewardship programs that support efforts to recycle a range of materials. No such programs are currently available to communities in Nunavut.

5.9.1. Residential Recyclables

For Manitoba communities north of the 53rd parallel, the Manitoba Product Stewardship Program (MPSC) currently provides a subsidy of up to $192 per tonne[5] 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 materials eligible for the MPSC support payments include:

Table 1 – MPSC Eligible Materials

Paper Products	Containers
• Newspapers • Magazines • Boxboard (e.g. cereal boxes) • Telephone Books • Old Cardboard Containers (OCC)	• Milk Cartons • TetraPacs (e.g. drink boxes) • #1 PET beverage containers • #2 HDPE beverage containers • Steel Cans • Aluminum Cans • Glass Containers • #5 & 7 Plastics

Based on the populations of the Manitoba communities to be included in this study, and projecting a relatively low capture rate for recyclable materials generated in each community, the following Table provides an

[5] This includes a base rate of $152 per tonne plus Northern Assistance of $40 per tonne. To qualify for Northern Assistance, communities must apply to MPSC. It should be noted that the Municipal Support Payment applies to *residential* recyclables only.

estimate of the amount of support payments potentially available from the MPSC:

Table 2 – Potential Generation and Capture Rates for Residential Recyclables

	Pop.	Total Estimated Generation	Estimated Capture Rate	Total Captured	MPSC Support Payments	Total Potential Revenue
Churchill[6]	1089	61 T/yr	30%	18 T/yr	$192/T	$3,456
Gillam[7]	1300	145 T/yr	50%	72 T/yr	$192/T	$13,824

A variety of issues related to collecting, sorting, transporting, and processing these materials would need to be addressed prior to implementing a residential recycling program in the pilot communities. Residential recycling strategies have already been prepared for recycling these materials in several northern communities, however, so much of the work of designing these programs has already been done.[8]

5.9.2. Used Tires

The Manitoba Tire Stewardship Board (MTB) provides a subsidy of $0.50 per tire for every tire collected in Manitoba Communities. The MTB also pays a subsidy to remote communities to ship their tires to the nearest urban centre.

5.9.3. Used Oil

The Manitoba Association of Resource Recovery Corporation (MARRC) has been set-up to support the creation of used oil collection depots in

[6] Churchill already has a functioning recycling program.

[7] earthbound environmental has recently prepared a waste diversion strategy for Gillam.

[8] earthbound environmental inc. has recently prepared waste reduction strategies for NCN, Norway House, Split Lake, Fox Lake, Wabowden, Gillam, and Leaf Rapids.

communities throughout Manitoba. MARRC covers 50% of the up front capital costs when a depot is established (up to $3,000) and also provide an operating subsidy of up to $2,000 per year.[9]

Establishing a small scale used oil collection depot at the central compound where scrap metal is collected may provide another revenue generating opportunity for communities in Manitoba.

5.10. Project Management

5.10.1. earthbound environmental Inc.

earthbound environmental Inc. will be providing overall project coordination including corresponding with funders and other project partners, submitting monthly HRDC claims, preparing updates, liasing with the project steering committee, financial tracking, and report preparation. e*arthbound* will also manage those aspects of the project related to recycling residential materials. The company will be involved in the project from March 1, 2003 to the time the final report is submitted (projected to be January 31, 2004). See Appendix C for relevant qualifications.

5.10.2. Scrap Metal Recycling Company

A company with experience recycling scrap metal from northern and remote communities will be contracted to bale and ship materials collected in the pilot communities. Candidates will be asked to submit bids for the work.

5.11. Local Management

To ensure that local activities are properly coordinated, it is important that a local entity be contracted to coordinate and supervise the activities of project staff. Local governments could provide this coordination (especially since they will likely be the official employer) or it could be contracted to a local company or individual. This coordination activity will be paid for on a “per ton of material recycled” basis to reward productivity.

[9] An operating license from Manitoba Conservation is required.

5.12. Local Volunteers

Local residents will be encouraged to get involved in the project to help build local expertise in, and enthusiasm for, recycling in the pilot communities. Volunteer involvement will be available in both the daily "on-the-ground" work of collecting and sorting material, as well as on local advisory committees that would oversee the implementation and management of the local recycling initiatives.

5.13. Project Proponent

North Central Development (NCD) in Thompson has agreed to consider acting as the official proponent of this project. Their role would mainly involve submitting official funding applications, managing the budget for the project, and helping to coordinate the project with other recycling activities taking place in Northern Manitoba.[10]

5.14. Project Steering Committee

It is recommended that a Steering Committee be established to provide input and guidance for the duration of the pilot project. Representatives from the following companies and organizations would be potential members of the committee:

- Government of Manitoba
- Government of Nunavut
- Mandak Metals/Gerdau MRM Steel
- Canadian National Railway
- Gardewine North
- OmniTrax
- Northern Transportation Company Limited (NTCL)
- Any or all of the other project funders

This group would meet on a regular basis (by-monthly?) to review progress and provide input.

[10] An NCD staff person acting as a northern recycling coordinator promotes and helps coordinate recycling activity throughout the eastern side of Northern Manitoba. This staff person would be directly involved with and connected to the scrap metal recycling pilot project.

5.15. Measuring Greenhouse Gas Emissions

Throughout the project, an attempt will be made to measure the greenhouse gas (GHG) impacts associated with the project. The main component contributing to GHG emissions would be equipment operation and transportation. Greenhouse gas reductions achieved through recycling the metals will also be calculated using standard energy saving formulas to be provided by Natural Resources Canada. Net GHG impacts will then be calculated and included in the final report.

5.16. Dedicated Airlift Fund

When working in remote communities it is important to be sure that an emergency air-lift will be available if needed. Lynn Lake Salvage, for example, maintains a dedicated fund in a separate bank account when working in remote areas that is available for immediate payment to an airlift company should their services be needed. Confirmation about the existence of the account is provided to the company providing airlift services so that they know they will be paid if called upon.

5.17. Potential Funders

A number of government agencies and departments at both the provincial and federal levels will be approached to cover the cost of the pilot project. These include:

Table 3 – Potential Funders

Department/Agency	Government
Natural Resources Canada (NRCan)	Federal
Eco-Action Fund	Federal
Human Resources Development Canada (HRDC)	Federal
Aboriginal & Northern Affairs	Province of Manitoba
Waste Reduction and Pollution Prevention (WRAPP) Fund	Province of Manitoba
Intergovernmental Affairs	Province of Manitoba
Department of Transportation	Province of Manitoba
Manitoba Hydro	Province of Manitoba

Public Works & Government Services Canada (PWGSC)	Federal
Government of Nunavut	Government of Nunavut

5.18. Revenue From the Sale of Recycled Scrap

Mandak Metals will purchase the metal shipped from the pilot communities based on current market rates. It is recommended that accessible high-value non-ferrous materials (e.g. copper and aluminum) be separated from the rest of the scrap metal prior to shipping. Given the high value of these materials, it is anticipated that collecting and marketing these materials independently from the rest of the ferrous scrap will improve the financial viability of scrap metal recycling in these communities.

The revenue from the sale of material will be used to offset the costs of the pilot project.

5.19. Potential Product Stewardship Partnership

The Manitoba Product Stewardship Program has been operating for seven years and is recognized nationally and internationally as an innovative and successful model for supporting residential recycling programs. As noted above, the MPSC pays $192/tonne for all residential recyclables collected in communities in northern Manitoba. Without these support payments, the level of recycling in northern communities, and indeed throughout the province, would be a fraction of what is currently underway.

Nunavut currently does not have a program that helps cover the cost of recycling programs in their communities. There has been talk, however, of Nunavut establishing some type of program that would collect funds that could be used to support community recycling initiatives. Instead of Nunavut creating their own program from scratch, there may be an opportunity for the MPSC program to be expanded to include communities in Nunavut.

The MPSC is already well established with all of the necessary infrastructure, reporting and payment systems, and data collection methods in place. Building on this established system would be considerably cheaper to implement for the government of Nunavut, and could be implemented in much less time than creating a brand new organization.

This pilot project could collect data to help determine the financial and logistical impacts associated with a potential Manitoba/Nunavut partnership for the MPSC. Issues include:

- Because a system is already in place for collecting the enviro-levy on beverage containers sold in Manitoba but shipped to Nunavut, it may be easy to simply keep this revenue with the MPSC and use it cover the incurred costs.[11]
- The amount of funding required to provide support payments to communities in Nunavut of $192 per tonne will likely be relatively low for several years until recycling programs have been established on a large scale and are diverting large amounts of material.

If successful, it may be possible to apply this partnership model to other stewardship programs currently established in the province (e.g. used oil and used tires).

5.20. Final Report

A final report will be prepared by *earthbound environmental Inc*. at the end of the pilot project. This report will record the details of all project activities, lessons learned, and opportunities identified. A breakdown of all project costs and revenues will also be provided. The information collected during the pilot will demonstrate the cost-effectiveness and viability of the scrap metal recycling system implemented during the project.

[11] The MPSC collects a 2-cent enviro levy on all beverages purchased in Manitoba but shipped to Nunavut. Nunavut then applies to the MPSC for a rebate because the beverages left the province.

6. Community Implementation Details

The following section details how the pilot would be implemented in each of the communities involved in the project.

6.1. Gillam

Gillam is a community of approximately 1200 people located approximately 200 kilometres east of Thompson in Northern Manitoba. It has year round access by road, rail, and air. Manitoba Hydro is a dominant presence in the community and much of the scrap metal that has accumulated at their landfill was generated by Manitoba Hydro activities.

6.1.1. Available Material

There is approximately 800 tons of scrap metal at the waste disposal ground in Gillam. See Appendix B for a picture of the scrap pile.

6.1.2. Staff

It is anticipated that two local people will be hired at the beginning of April to work on scrap metal and other recycling related projects in the community. They would be employed throughout the duration of the pilot program until the end of November, 2003. It is anticipated that the Town of Gillam would be the official employer of these staff and provide supervision and support to their activities.

Specific activities will include:

1. Separate and securely store non-ferrous metals from the scrap metal pile and other sources in the community.
2. Work with the baler operator for the period that the material at the dump is being baled.
3. Assist with shipping the baled material.
4. Assist the town to implement it's residential recycling strategy (distributing promotional material, building depots, collecting recyclables, sorting material, etc.).
5. Record the weight of material leaving the community (whenever possible).

6.1.3. Storage of Non-Ferrous Metal

Non-ferrous metals (i.e. copper and aluminum) have a much higher value than normal scrap material. The high value of these metals make them very attractive to thieves once they have been cleaned and centralized, particularly in communities with road access to markets in the south.

To address this issue, it is highly recommended that the Town of Gillam provide a secure storage area for these metals until they have been shipped to an end-market. This could be a trailer in the town works yard or in one of Manitoba Hydro's local compounds.

The staff working on the project could regularly deliver non-ferrous metals that they collect to the storage area.

6.1.4. Baling

The baler and backhoe would be shipped to Gillam and start working in May or early June (as soon as the snow melts). While in the community, the backhoe operator would require the assistance of the local people hired to work on the project to prepare material and help operate the baler.

It is anticipated that baling the estimated 800 tonnes of scrap in Gillam will take 26 days. The operator would stay at a local hotel while in Gillam.

6.1.5. Shipping

There are currently two options being considered to ship the scrap metal to Mandak:

1. Backhaul – After the material has been baled the bales would be stacked on pallets and left at the landfill. They would then be backhauled to Winnipeg by Harvey Williams trucking when these trucks leave every Wednesday.[12]

   The cost of backhauling a trailer of scrap to Mandak's plant in Selkirk is approximately $800. Approximately 15 tons of material could be loaded into each trailer for a cost of $53 per ton.

[12] Harvey Williams Trucking sends 2 trucks to Gillam every week that return south with empty trailers.

2. Rail – Gondola cars will be located in Gillam and loaded with the baled material. When full, the gondola cars will be delivered to Mandak by rail.

   The cost of moving a gondola car from Gillam to Mandak's plant in Selkirk is approximately $3,500. Approximately 70 tons of material could be loaded into each trailer for a cost of $50 per ton.

A final decision about how the material will be shipped will be made a month prior to baling the material.

6.1.6. Residential Recycling

The Town of Gillam has a plan for beginning a residential recycling program. This plan includes an extensive public education campaign, the purchase of a trailer for collecting recyclable material from people's homes,[13] storing collected material in large mesh bags, and shipping the bags of material to the Thompson Recycling Centre for processing.

It is hoped that the resources that will be available to the Town during the pilot project (particularly the additional staffing) will help make it possible to implement their plan.

[13] The trailer could also be used as a stationary depot at a central location in Town when not being used for curbside collection.

6.1.7. Projected Budget

			Monthly Cost	Total Project Cost
Local Staffing				
Wages (2 people)	280 hrs/mo.	$10 /hr	$ 2,800	$ 22,400
Training	*Provided by Mandak*			$ -
Travel Costs (to Selkirk for three-days)	$1500 per employee			$ 3,000
TOTAL LOCAL STAFF COSTS				$ 25,400
Local Coordination				
Local Project Coordination	$5 /ton			$ 4,000
Equipment & Supplies				
Misc. Supplies			$200 /mo.	$ 1,600
Rental of Storage Trailers	*Provided by the Town of Gillam*			$ -
Baling				
Back-hoe Loader & Operator	$90 /hr	200 hrs		$ 18,000
Baler	$75 /hr	200 hrs		$ 15,000
Transporting Equipment to Gillam (one-way)				$ 3,000
Flying Operator to Gillam from home community	$1000 per trip	2 round trips		$ 2,000
Meals & Accomodations for Operator	$100 /day	24 days		$ 2,400
Shipping				
Moving Material to Mandak by Rail	$50 /ton			$ 40,000
TOTAL OTHER COSTS				$ 86,000
TOTAL COST				**$ 111,400**
Per Ton Cost				***$139 /ton***
Revenue				
Regular Scrap Metal	800 tons	@ $70 /ton		$ 56,000
Non-Ferrous Materials	3000 lbs	@ $0.40 /lb		$ 1,200
TOTAL REVENUE				**$ 57,200**
PROJECTED NET COST				**$ 54,200**
Projected Net Cost Per Ton				***$ 68***

6.2. Churchill

Churchill is a community of approximately 1000 people located on the west coast of Hudson Bay in Northern Manitoba. Access is available year round by air and rail.

6.2.1. Available Material

There are two scrap metal piles in Churchill. One pile is at the existing waste disposal ground and the other is located at the proposed site of the new waste disposal ground (which may be built as early as 2003). The scrap metal collected at the existing waste disposal ground is the responsibility of the federal government through Public Works & Government Services Canada (PWGSC).[14] The material at the proposed landfill site is the responsibility of the Town of Churchill.

Based on video footage of the two major scrap metal piles it is estimated that there is approximately 1000 tons of material in each of the scrap metal piles. The combined total for the Churchill area is approximately 2000 tons. A conservative estimate of 1500 tons will be used for the purposes of the projections in this report.

See Appendix B for pictures of the two piles in Churchill.

6.2.2. Staff

It is anticipated that two local people will be hired at the beginning of April to work on scrap metal and other recycling related projects in the community. They would be employed throughout the duration of the pilot project. It is anticipated that the Town of Churchill would be the official employer of these staff and provide supervision and support to their activities.

Specific activities will include:

1. Separate and securely store non-ferrous metals from the scrap metal pile and other sources in the community.

[14] PWGSC is considering cleaning-up of this pile during 2003 although it is contingent on the town constructing a new landfill. If the pilot proceeds, receiving a financial contribution to the project from PWGSC would be a reasonable expectation.

2. Work with the baler operator for the period that the material at the dump is being baled.
3. Assist with shipping the baled material.
4. Assist the town to implement it's residential recycling strategy (distributing promotional material, building depots, collecting recyclables, sorting material, etc.).
5. Record the weight of material leaving the community (whenever possible).

6.2.3. Storage of Non-Ferrous Metal

Non-ferrous metals (i.e. copper and aluminum) have a much higher value than normal scrap material. The high value of these metals make them very attractive to thieves once they have been cleaned and centralized. However, because people can not easily deliver this material to an end-market in the south without significant transportation arrangements being made, the possibility of theft should be lower in Churchill than in Gillam.

It is still prudent for the non-ferrous metal to be securely stored. It is anticipated that the Town of Churchill will be able to provide the necessary space. The staff working on the project could regularly deliver non-ferrous metals that they collect to the storage area.

6.2.4. Baling

When the baler and backhoe are finished in Gillam they will be shipped by rail to Churchill, likely at the end of June. While in the community, the backhoe operator would require the assistance of the local people hired to work on the project to prepare material and help operate the baler.

It is anticipated that baling the estimated 1500 tons of scrap in Churchill will take approximately 65 days. The operator would stay at a local hotel while in the community.

6.2.5. Shipping

The scrap metal processed and baled in Churchill will be delivered in gondola cars to Mandak by rail. The cost of moving a gondola car from Churchill to Mandak's plant in Selkirk is approximately $4,150. Using a

conservative estimate of 70 tons of material on each gondola car, this works out to a cost of $59/ton.

6.2.6. Residential Recycling

A local environmental organization currently operates a residential recycling program for residents of Churchill. This program collects, sorts, and ships residential recyclables collected in the community. Gardewine North currently hauls the collected material to the Thompson Recycling Centre for processing free of charge. A support payment of $192 per tonne of material shipped is available from the Manitoba Product Stewardship Corporation (MPSC) to support these recycling efforts in the Town of Churchill.

The level of energy available to operate this program on a volunteer basis, however, is currently very low.[15] As a result, the Town of Churchill is considering implementing a program operated by the municipality. This program would presumably build on the program that the local environmental group has been operating for almost 10 years.

It is hoped that the resources that will be available to the Town during the pilot project (particularly the additional staffing) will help make it possible to implement their plan.

[15] Personal conversation with Louise Lawrie, program coordinator.

6.2.7. Projected Budget

			Monthly Cost	Total Project Cost
Local Staffing				
Wages (2 people)	280 hrs/mo.	$10 /hr	$ 2,800	$ 22,400
Training	*Provided by Mandak*			$ -
Travel Costs (to Selkirk for three-days)	$2000 per employee			$ 4,000
TOTAL LOCAL STAFF COSTS				$ 26,400
Local Coordination				
Local Project Coordination	$5 /ton			$ 7,500
Equipment & Supplies				
Misc. Supplies			$200 /mo.	$ 1,600
Rental of Storage Trailers	*Provided by Gardewine*			$ -
Baling				
Back-hoe Loader & Operator	$90 /hr	375 hrs		$ 33,750
Baler	$75 /hr	375 hrs		$ 28,125
Transporting Equipment to Churchill (one-way)				$ 3,450
Flying Operator to Churchill from home community	$1000 per trip	4 round trips		$ 4,000
Meals & Accomodations for Operator	$110 /day	45 days		$ 4,950
Shipping				
Moving Material to Mandak by Rail	$59 /ton			$ 88,929
TOTAL OTHER COSTS				$ 172,304
TOTAL COST				**$ 198,704**
Per Ton Cost				***$132 /ton***
Revenue				
Regular Scrap Metal	1500 tons	@ $70 /ton		$ 105,000
Non-Ferrous Materials	20,000 lbs	@ $0.40 /lb		$ 8,000
TOTAL REVENUE				**$ 113,000**
PROJECTED NET COST				**$ 85,704**
Projected Net Cost Per Ton				***$ 57***

6.3. Rankin Inlet

Rankin Inlet is a community of approximately 2200 people located on the west coast of Hudson Bay in the Kivaliq region of Nunavut. The community is accessible by air on a year-round basis and by barge between the months of July and October. Much of the freight delivered to the community arrives on barges operated by the Northern Transportation Company Ltd (NTCL) out of Churchill during the summer.

6.3.1. Available Material

There are approximately 800 tons of scrap metal in and around Rankin Inlet. Some of this material is centralized at the local waste disposal ground with the rest dispersed throughout the community. The Hamlet administration is committed to cleaning up this material and has prioritized the removal of scrap metal that has been abandoned in the community.

See Appendix B for pictures of the scrap metal available in Rankin.

6.3.2. Staff

It is anticipated that two local people will be hired at the beginning of April to work on scrap metal and other recycling related projects in the community. The pilot program would employ them until the end of November, 2003. It is anticipated that the Hamlet of Rankin Inlet would be the official employer of these staff and provide supervision and support to their activities.

Specific activities will include:

1. Separate and securely store non-ferrous metals from the scrap metal pile and other sources in the community.
2. Assist with loading and shipping the collected material when the barge arrives.
3. Assist the town to implement it's residential recycling strategy (distributing promotional material, building depots, collecting, sorting, shipping material to a processor, etc.).
4. Record the weight of material leaving the community (whenever possible).

6.3.3. Storage of Non-Ferrous Metal

Non-ferrous metals (i.e. copper and aluminum) have a much higher value than normal scrap material. The high value of these metals make them very attractive to thieves once they have been cleaned and centralized. However, because people cannot easily deliver this material to an end-market in the south without significant transportation arrangements being made, the possibility of theft should be relatively low in Rankin.

It is still prudent for the non-ferrous material to be securely stored. The staff working on the project could regularly deliver non-ferrous metals that they collect to the storage area.

6.3.4. Storage Area

Prepared material will be stored in an area where it can be conveniently loaded on the barge when in the community.

6.3.5. Transporting to Churchill

As mentioned above, the scrap metal in Rankin will be shipped to Churchill "loose" (without being baled). This will require small items (e.g. appliances and small loose material) to be loaded into trucking "containers" prior to shipping. Gardewine has already shipped three of these containers to Rankin for use by the pilot project in 2003. Large items (e.g. vehicles, discarded construction equipment, etc.) will be loaded directly onto the deck of the barge with a forklift.

It may also be useful to consider constructing reinforced containers specifically designed to haul scrap out of communities in Nunavut to Churchill. They could be converted containers with the roofs removed and walls reinforced or specially designed steel units that could be broken down and flattened when empty. They would need to be designed so that they could be used to haul other materials when leaving Churchill for the communities serviced by NTCL that have established recycling programs.

Non-ferrous metals will be loaded into separate containers for direct shipment to end-markets.

To ensure that the maximum quantity of material is loaded onto each shipment of material, training in proper handling and loading procedures will be provided to the local staff in Rankin.

When the barge arrives in Churchill the containers and large items will be unloaded and left in a designated scrap metal collection area.

6.3.6. Baling

Scrap metal from Rankin will be baled when it arrives in Churchill.

6.3.7. Shipping to Mandak

The scrap metal processed and baled in Churchill will be delivered in gondola cars to Mandak by rail. The cost of moving a gondola car from Churchill to Mandak's plant in Selkirk is approximately $4,150. Using a conservative estimate of 70 tons of material on each gondola car, this works out to a cost of $59/ton.

6.3.8. Residential Recycling

Rankin Inlet does not currently have a program for collecting residential recyclables although various attempts have been made over the years to get one started. Starting a residential program as part of the project to recycle scrap metal could help generate additional revenue and create opportunities for increased efficiency.

As such it is recommended that developing a recycling program for aluminum cans be included in the tasks identified for the local project manager. Starting the program with a focus on aluminum cans has several advantages:

1. Recycled aluminum cans have a very high market price
2. Starting with only one material will help focus the program until sufficient experience has been gained to expand it to other materials
3. Aluminum cans are relatively easy to handle and can be easily compacted

Some important issues to consider when implementing the program include:

Public Education

Properly promoting a recycling program is fundamental to its success. Local residents need to know why they should recycle, how the program works, and what are the benefits of participating. Changing people's habits is not easy but it is definitely possible. A list of possible components of a public education strategy for the recycling program in Rankin is provided in Appendix D.

Aluminum Can Collection

Depot System - A depot system would involve putting out one or more containers in the community for local residents to deposit their cans. This could include a single depot located at a central location, or several depots set-up at a variety of places (including one or two on every street in town). Collection containers such as old barrels painted green could be used.

"Curbside" Collection - This type of system would require the town staff that are currently picking up garbage to also pickup cans that have been put out in separate containers (than regular garbage) as part of their rounds. The cans could be placed in a separate compartment on the collection vehicle.

The benefits of the depots are that they are relatively cheap to set-up and operate, although it requires more effort on the part of residents. The main benefit of the curbside program is that it helps increase the convenience of the service and thus improves the number of cans that would be captured.

Staffing

The staff to be hired to work on the pilot project could spend a portion of their time setting up and running the aluminum can recycling program. Local volunteers could also be enlisted to help. Assuming a depot system in Rankin, some of the necessary tasks include:

- Identifying possible depot locations and making arrangements for placing bins
- Painting and distributing steel barrels to be used as depots
- Emptying and maintaining the depots
- Ensuring promotional material is distributed

Storing

A separate building should not be required for an aluminum can recycling program. The number of cans collected on an annual basis, if properly compacted, should not require a large amount of space to store. As part of the public education campaign, residents should be encouraged to flatten aluminum cans prior to putting them out for collection.

Using discarded oil drums to store and ship the aluminum cans would provide a no cost packaging opportunity while helping clean up the community at the same time. The drums could be filled with crushed cans, placed on pallets, strapped together, and covered. They could then easily be moved around with a forklift and stacked.

The cans do not require heated space and could be stored in a shipping container (perhaps one of the ones left in Rankin by Gardewine) or even outside if covered with weatherproof material.

Transportation

There are two options for shipping the aluminum cans to a processor:

1. First Air flies regular flights from Rankin Inlet to Winnipeg with little or no cargo on board. First Air is currently considering a request to haul recyclable materials to Winnipeg from Rankin at little or no charge . A formal request has been considered at a company meeting held in Toronto in September 2002.(see Appendix E for a copy of the letter that was sent to First Air outlining the request). A decision is expected soon.
2. Gardewine frequently sends empty semi-trailers and shipping containers back to Thompson from Rankin Inlet. If the proposal

sent to First Air is not accepted, arrangements could also be made to load these trailers with the recyclable material and ship it to the Thompson Recycling Centre for processing by the Thompson Recycling Centre.

Revenue

The potential revenue available from the sale of the cans will depend on the number of cans collected. Because most of the beverages sold in Rankin are packaged in aluminum cans, the volume of available material should be relatively high. The number of cans collected will be determined to a large extent on the effectiveness of the public education campaign that is implemented.

Given the high value of this material, revenues from recycling the cans should exceed the cost of maintaining the program.

6.3.9. Local Coordination

The local coordination of activities related to the scrap metal recycling pilot in Rankin will be contracted to the Hamlet, a local individual, company, or agency. A Request for Proposals covering all aspects of project management for the duration of the pilot will be locally distributed.

6.3.10. Local Recycling Committee

Organizing a local committee to contribute to the implementation of the pilot recycling program would allow people with an interest in recycling to contribute their time, energy, and ideas to the successful development of a sustainable program. It is highly recommended that such a group be organized in Rankin.

6.3.11. Projected Budget

			Monthly Cost	Total Project Cost
Local Staffing				
Wages (2 people)	280 hrs/mo.	$10 /hr	$ 2,800	$ 22,400
Training	*To be provided by Mandak*			$ -
Travel Costs (to Selkirk for three-days)	$2000 per employee			$ 4,000
TOTAL LOCAL STAFF COSTS				$ 26,400
Local Coordination				
Local Project Coordination	$30 /ton			$ 24,000
Equipment & Supplies				
Misc. Supplies			$200 /mo.	$ 1,600
Rental of Storage Trailers	*Provided by Gardewine*			$ -
Baling				
Back-hoe Loader & Operator (in Churchill)	$90 /hr	200 hrs		$ 18,000
Baler (in Churchill)	$75 /hr	200 hrs		$ 15,000
Transporting Equipment back to home community				$ 3,450
Flying Operator to home community from Churchill	$1000 per trip	2 round trips		$ 2,000
Meals & Accomodations for Operator	$110 /day	24 days		$ 2,640
Shipping				
Cost of Custom Made Scrap Metal Transport Container				$ 5,000
Moving Material to Churchill by Barge	$40 /ton			$ 32,000
Cost of Unloading Material & Moving to Staging Area	$10 /ton			$ 8,000
Moving Material to Mandak by Rail From Churchill	$59 /ton			$ 47,429
TOTAL OTHER COSTS				$ 159,119
TOTAL COST				**$ 185,519**
Per Ton Cost				***$232 /ton***

Revenue			
Regular Scrap Metal	800 tons	@ $70 /ton	$ 56,000
Non-Ferrous Materials	10,000 lbs	@ $0.40 /lb	$ 4,000
TOTAL REVENUE			**$ 60,000**

PROJECTED NET COST	**$ 125,519**
Projected Net Cost Per Ton	***$ 157***

6.4. Coral Harbour

Coral Harbour is a community of approximately 700 people located on the southern section of Southhampton Island. The community is accessible by air on a year-round basis and by barge between the months of July and October. Much of the freight delivered to the community arrives on barges operated by the Northern Transportation Company Ltd (NTCL) out of Churchill during the summer.

6.4.1. Available Material

An estimate of 500 tons of scrap metal is located in and around Coral Harbour.

6.4.2. Staff

It is anticipated that two local people will be hired at the beginning of April to work on scrap metal and other recycling related projects in the community. They would be employed by the pilot program until the end of November, 2003. It is anticipated that the Hamlet of Coral Harbour would be the official employer of these staff and provide supervision and support to their activities.

Specific activities will include:

1. Separate and securely store non-ferrous metals from the scrap metal pile and other sources in the community.
2. Assist with loading and shipping the collected material when the barge arrives.
3. Assist the town to implement it's residential recycling strategy (distributing promotional material, building depots, collecting, sorting, shipping material to a processor, etc.).
4. Record the weight of material leaving the community (whenever possible).

6.4.3. Storage of Non-Ferrous Metal

Non-ferrous metals (i.e. copper and aluminum) have a much higher value than normal scrap material. The high value of these metals make them very attractive to thieves once they have been cleaned and centralized.

However, because people cannot easily deliver this material to an end-market in the south without significant transportation arrangements being made, the possibility of theft should be relatively low in Coral Harbour.

It is still prudent for the non-ferrous material to be securely stored. The staff working on the project could regularly deliver non-ferrous metals that they collect to the storage area.

6.4.4. Storage Area

Prepared material will be stored in an area where it can be conveniently loaded on the barge when in the community.

6.4.5. Transporting to Churchill

As mentioned above, the scrap metal in Coral Harbour will be shipped to Churchill "loose" (without being baled). This will require small items (e.g. appliances and small loose material) to be loaded into trucking "containers" prior to shipping. Large items (e.g. vehicles, discarded construction equipment, etc.) will be loaded directly onto the deck of the barge with a forklift.

Loading material into reinforced containers specifically designed to haul scrap out of communities in Nunavut to Churchill could also be used if the decision to build them is made.

Non-ferrous metals will be loaded into separate containers for direct shipment to end-markets.

To ensure that the maximum quantity of material is loaded onto each shipment of material, the staff in Coral Harbour will be trained in proper handling and loading procedures.

When the barge arrives in Churchill the containers and large items will be unloaded and left in a designated scrap metal collection area.

6.4.6. Baling

Scrap metal from Coral Harbour will be baled when it arrives in Churchill.

6.4.7. Shipping to Mandak

The scrap metal processed and baled in Churchill will be delivered in gondola cars to Mandak by rail. The cost of moving a gondola car from Churchill to Mandak's plant in Selkirk is approximately $4,150. Using a conservative estimate of 70 tons of material on each gondola car, this works out to a cost of $59/ton.

6.4.8. Residential Recycling

Coral Harbour does not currently have a program for collecting residential recyclables. Starting a residential program as part of the project to recycle scrap metal could help generate additional revenue and create opportunities for increased efficiency.

As such it is recommended that developing a recycling program for aluminum cans be included in the tasks identified for the local project manager. Starting the program with a focus on aluminum cans has several advantages:

1. Recycled aluminum cans have a very high market price
2. Starting with only one material will help focus the program until sufficient experience has been gained to expand it to other materials
3. Aluminum cans are relatively easy to handle and can be easily compacted

Some important issues to consider when implementing the program include:

Public Education

Properly promoting a recycling program is fundamental to its success. Local residents need to know why they should recycle, how the program works, and what are the benefits of participating. Changing people's habits is not easy but it is definitely possible. A list of possible components of a public education strategy for the recycling program in Coral Harbour is provided in Appendix D.

Aluminum Can Collection

Depot System – A depot system would involve putting out one or more containers in the community for local residents to deposit their cans. This could include a single depot located at a central location, or several depots setup at a variety of places (including one or two on every street in town). Collection containers such as old barrels painted green could be used.

"Curbside" Collection – This type of system would require the town staff that are currently picking up garbage to also pickup cans that have been put out in separate containers (than regular garbage) as part of their rounds. The cans could be placed in a separate compartment on the collection vehicle.

The benefits of the depots are that they are relatively cheap to setup and operate, although it requires more effort on the part of residents. The main benefit of the curbside program is that it helps increase the convenience of the service and thus improves the number of cans that would be captured.

Staffing

The staff to be hired to work on the pilot project could spend a portion of their time setting up and running the aluminum can recycling program. Local volunteers could also be enlisted to help. Assuming a depot system in Coral Harbour, some of the necessary tasks include:

- Identifying possible depot locations and making arrangements for placing bins
- Painting and distributing steel barrels to be used as depots
- Emptying and maintaining the depots

- Ensuring promotional material is distributed

Storing

A separate building should not be required for an aluminum can recycling program. The number of cans collected on an annual basis, if properly compacted, should not require a large amount of space to store. As part of the public education campaign, residents should be encouraged to flatten aluminum cans prior to putting them out for collection.

Using discarded oil drums to store and ship the aluminum cans would provide a no cost packaging opportunity while helping clean up the community at the same time. The drums could be filled with crushed cans, placed on pallets, strapped together, and covered. They could then easily be moved around with a forklift and stacked.

The cans do not require heated space and could be stored in a shipping container or even outside if covered with weatherproof material.

Transportation

There are two options for shipping the aluminum cans to a processor:

1. First Air flies regular flights from Coral Harbour to Winnipeg with little or no cargo on board. First Air is currently considering a request to haul recyclable materials to Winnipeg from Rankin Inlet at little or no charge. Should this proposal be accepted, the possibility of extending the offer to flights out of Coral Harbour will be pursued.
2. Gardewine frequently sends empty semi-trailers and shipping containers back to Thompson from Coral Harbour. If the proposal sent to First Air is not accepted, arrangements could also be made to load these trailers with the recyclable material and ship it to the Thompson Recycling Centre for processing by Gardewine.

Revenue

The potential revenue available from the sale of the cans will depend on the number of cans collected. Because most of the beverages sold in Coral Harbour are packaged in aluminum cans, the volume of available

material should be relatively high. The number of cans collected will be determined to a large extent on the effectiveness of the public education campaign that is implemented.

Given the high value of this material, revenues from recycling the cans should exceed the cost of maintaining the program.

6.4.9. Local Coordination

The local coordination of activities related to the scrap metal recycling pilot in Coral Harbour will be contracted to the Hamlet, a local individual, company, or agency. A Request for Proposals covering all aspects of project management for the duration of the pilot will be locally distributed.

6.4.10. Local Recycling Committee

Organizing a local committee to contribute to the implementation of the pilot recycling program would allow people with an interest in recycling to contribute their time, energy, and ideas to the successful development of a sustainable program. It is highly recommended that such a group be organized in Coral Harbour.

6.4.11. Projected Budget

			Monthly Cost	Total Project Cost
Local Staffing				
Wages (2 people)	280 hrs/mo.	$10 /hr	$ 2,800	$ 22,400
Training	*To be provided by Mandak*			$ -
Travel Costs (to Selkirk for three-days)	$2000 per employee			$ 4,000
TOTAL LOCAL STAFF COSTS				$ 26,400
Local Coordination				
Local Project Coordination	$30 /ton			$ 15,000
Equipment & Supplies				
Misc. Supplies			$200 /mo.	$ 1,600
Rental of Storage Trailers	*Provided by Gardewine*			$ -
Baling				
Back-hoe Loader & Operator (in Churchill)	$90 /hr	125 hrs		$ 11,250
Baler (in Churchill)	$75 /hr	125 hrs		$ 9,375
Transporting Equipment back to home community				$ 3,450
Flying Operator to home community from Churchill	$1000 per trip	2 round trips		$ 2,000
Meals & Accomodations for Operator in Churchill	$110 /day	15 days		$ 1,650
Shipping				
Cost of Custom Made Scrap Metal Transport Container				$ 5,000
Moving Material to Churchill by Barge	$40 /ton			$ 20,000
Cost of Unloading Material & Moving to Staging Area	$10 /ton			$ 5,000
Moving Material to Mandak by Rail From Churchill	$59 /ton			$ 29,643
TOTAL OTHER COSTS				$ 103,968
TOTAL COST				**$ 130,368**
Per Ton Cost				***$261 /ton***

Revenue				
Regular Scrap Metal	500 tons	@ $70 /ton		$ 35,000
Non-Ferrous Materials	10,000 lbs	@ $0.40 /lb		$ 4,000
TOTAL REVENUE				**$ 39,000**

PROJECTED NET COST	**$ 91,368**
Projected Net Cost Per Ton	***$ 183***

7. Timelines

The following Table outlines when the various activities to be undertaken during the pilot will take place.

MARCH 1, 2003	**Official Start of Project** • Project Managers begin work • Confirm members of Project Steering Committee
March 3 – 31	Scrap Metal Recycling Manual prepared for local staff
March 3 – 7	RFP for local Project Management in each community will be developed & sent out
March 10	Local staff positions advertised in each community
March 17	Arrange for use of trailers for storage

Staffing

April 1	Staff hired for an 8 month term (ending November 30, 2003)
April 1	Position trailers and use for storage
April 1 – 4	Staff orientation conducted
April 7 – 9	Staff training conducted in Selkirk
April 10	Staff begin work in communities

Baling

May 19 – June 27	Material in Gillam is baled
June 30 – July 6	Baler and backhoe are shipped to Churchill
July 7 – Oct 31	Material in Churchill is baled
November 3	Baler and backhoe return home

Shipping

June 15	Shipping of bales from Gillam begins and continues until finished
End of July	The first barges out of Rankin & Coral Harbour bring a load to Churchill for baling
Aug 1	Shipping of bales by rail from Churchill to Selkirk begins and continues until finished

Final Report

January 15, 2004	Draft Report submitted for review and comment
January 31, 2004	Final Report Submitted

8. Budget Summary

	Total Project Cost
Local Staffing	
Wages (8 people)	$ 89,600
Training	$ -
Travel Costs (to Selkirk for three-days)	$ 15,000
TOTAL LOCAL STAFF COSTS	$ 104,600
Local Coordination	
Local Project Coordination	$ 50,500
Equipment & Supplies	
Misc. Supplies	$ 6,400
Rental of Storage Trailers	$ -
Baling	
Back-hoe Loader & Operator Cost	$ 81,000
Baler Cost	$ 67,500
Transporting Equipment	$ 13,350
Flying Operator to Stes	$ 10,000
Meals & Accomodations for Operator	$ 11,640
Shipping	
Cost of Custom Made Scrap Metal Transport Container	$ 10,000
Moving Material to Churchill by Barge	$ 52,000
Cost of Unloading Material & Moving to Staging Area	$ 13,000
Moving Material to Mandak by Rail	$ 206,000
TOTAL OTHER COSTS	$ 521,390
TOTAL OPERATING COSTS	**$ 625,990**

8.1. Summary of Operating Costs by Category

		Total Costs for Project
Professional Fees		
Scrap Metal Recycling Company	$	18,000
earthbound environmental Inc.	$	32,000
	$	50,000
Other Expenses		
Communication Expenses	$	2,000
Report Preparation	$	250
Travel	$	22,000
Total Other Expenses	$	24,250
TOTAL PROJECT MANAGEMENT COSTS	**$**	**74,250**

8.2. Project Management Costs

8.3. Summary of Revenue

Regular Scrap Metal	$	252,000
Non-Ferrous Materials	$	17,200
Total Projected Revenue	**$**	**269,200**

Projected Costs	Total Costs
Gillam	$ 111,400
Churchill	$ 198,704
Rankin Inlet	$ 185,519
Coral Harbour	$ 130,368
Project Management Costs	$ 74,250
TOTAL COSTS	$ 700,240
Projected Revenue	
Gillam	$ 57,200
Churchill	$ 113,000
Rankin Inlet	$ 60,000
Coral Harbour	$ 39,000
TOTAL REVENUE	$ 269,200
NET PROJECT COST	**$ 431,040**

8.4. Net Project Costs

	Requested Contribution
HRDC - Employment Assistance (Federal)	$ 89,600
Aboriginal & Northern Affairs (MB)	$ 40,000
Waste Reduction & Pollution Prevention Fund (MB)	$ 50,000
Transportation & Government Services (MB)	$ 5,000
Intergovernmental Affairs	$ 5,000
Govt of Nunavut	$ 115,000
Eco-Action (Federal)	$ 50,000
Natural Resources Canada (Federal)	$ 76,440
TOTAL FUNDING	$ 431,040

8.5. Breakdown of Funding Requests

Financial and/or in-kind contributions will also be requested from Public Works & Government Services Canada, Manitoba Hydro and local governments in the event of a funding shortfall (e.g. if HRDC is not in a position to cover the entire wage cost of the staff people to be employed). In-kind services would include the use of equipment, training and supervision of staff, and other supports.

9. On-Going Recycling Scrap Metal System for the North

Developing the basis for a sustainable, cost-effective system for recycling scrap metal and other materials is a key objective of this project. Implementing the pilot project will contribute to achieving this goal in the following ways:

1. Local government representatives and other community leaders will become more acquainted with the issues around why recycling is important and what can be done to establish a viable program.
2. Resources will be provided to communities to help them establish recycling programs that would not otherwise be available.
3. An opportunity will be provided to local people who have always been interested in helping a recycling program get established but have never before been supported.
4. Information about a range of issues related to establishing and operating a recycling program in northern conditions will have been collected and documented.
5. A network of recycling contacts in the pilot communities (and other communities in the region), transportation companies, government representatives, and end-markets will have been established. This network will provide a solid basis for continuing recycling efforts into the future.
6. The pilot will take advantage of the positive conditions that exist (e.g. government support for improved waste management practices, intergovernmental cooperation between Manitoba and Nunavut, etc.) which will contribute to the potential for success of on-going recycling efforts in the north.

Operating the pilot project will provide an important boost to recycling efforts underway in the north through increasing the levels of available information, financial resources, and contacts. It is anticipated that a critical mass of energy, ideas, and resources could emerge from the pilot

project that will greatly expand the amount of recycling activity that can successfully be achieved in northern communities well into the future.

Appendix A

Garden Hill Proposal

PROPOSAL

Garden Hill First Nation Scrap Metal Recycling Project

Introduction

Since the introduction of the Winter Road sometime in the 1960's, members of this community have made the annual trip to Winnipeg and other points South to purchase automotive vehicles of every variety. The majority of these vehicles were low cost and tended to last on the average of about six months. During the past ten years, it has become evident that the accumulation of derelict vehicles within the community was starting to become a problem. With the absence of a community landfill, the community has attempted to minimize this growing problem by gathering the abandoned vehicles in various sites within the community. Despite these efforts, the problem of abandoned vehicles continues to grow and with it, greater negative impact on the environment and increased health and safety hazards.

Problems Associated with Derelict Vehicles

Three main problems arise as a direct result of this situation:

First, there is the issue of health and safety risks that this poses for the children of the community. There have been reports of major injuries resulting from falls from playing around or near these vehicles. There have also been scratches and scrapes from the rusted vehicles that have resulted in infections and associated medical problems.

Second, there is the issue of the environmental impact of these derelict vehicles. Although an environmental impact assessment has not been made of this situation, it is quite evident that there exists serious and significant negative impacts to the environment. The vehicles are abandoned without the proper removal of liquids and dangerous materials. Over time the containers erode, leaching the liquids and dangerous substances into the ground and contaminating the soil and nearby waterways.

Third, the derelict vehicle sites and other abandoned vehicles contribute overall to the general atmosphere of disarray in the community. Despite annual Spring cleanups and other community management initiatives, the existence of abandoned vehicles continues to be a blight on the appearance of the community.

People in this region realize and appreciate the beauty of the natural surroundings that they live in and judging from the extent of discussion regarding this situation at community meetings, they want something done about the abandoned vehicle problem. As the problem grows year by year, the community experiences a sense of helplessness due to the lack of a community management plan to address this problem and the lack of finances to put any kind of plan into action.

The announcement of the Community Scrap Metal Recycling Initiative has been received with great interest among those members of the community who have been petitioning the Chief and Council to do something about this problem. There has been great concern by community members on the impacts of not only the derelict vehicles but also of other products that are harmful to the environment. These include disposable diapers, Styrofoam products, all plastic products and liquids such as used automotive oil and other engine liquids. This pilot project is seen as the avenue to implementing a definitive plan to clean up this community of derelict vehicles and to put into action other community recycling initiatives.

The Garden Hill Scrap Metal Recycling Project

The Barriers

The general consensus in this community is that a recycling program cannot sustain itself on an ongoing basis. Any recycling initiative would require substantial subsidies to maintain a long-term community recycling management plan. In this era of fiscal restraint, such provincial and federal government subsidies are practically non-existent. The alternative is to attach recycling initiatives to sustainable business ventures.

Inasmuch as community recycling programs are needed to stem environmental damage and to address health and safety concerns, the start-up and ongoing costs of the recycling programs are prohibitive to the point that entrepreneurs are unwilling to carry the extra risk a complementary recycling initiative might pose for their venture. An example is asking a convenience store to include an aluminum can recycling program to the retail operations. The added costs of crushing the materials to manageable sizes, locating storage space and of employing an individual to oversee this aspect of the business are quite significant. Add to this, the cost of transporting the materials to a recycling depot that is six hundred kilometers away. These factors have been the barriers to implementing all recycling initiatives including scrap metal.

The identified barriers are directly associated with the remoteness of this region. The question is; what kind of a business plan can de developed to overcome the barriers to addressing this problem? In order to implement a scrap metal recycling project, considerable storage space will be required. The plan must be part of a community waste management program, it has to involve other recyclables, it has to have a viable business venture as a foundation and the project must generate revenues to cover all the costs.

The Community Scrap Metal Recycling Pilot Project has come at a most opportune time for this community. A new landfill site is scheduled to begin construction this Spring. With the Landfill project will come a community waste management plan. Recycling programs will be developed as part of the waste management plan. The pilot project will be the basis to develop a sound business plan to address all recycling issues with the scrap metal recycling program as the focal point of entire program.

The Scrap Metal Recycling Program

Scrap metal is identified as any product with metal components that has ceased to provide the service for which it was originally intended. These are:

a) All automotive vehicles including cars, trucks, school buses and vans
b) All small motors such as outboard motors, snowmobiles, all terrain vehicles, appliance motors and lawn mowers
c) All aluminum products such as boats, soda cans and metal siding
d) All appliances such as stoves, refrigerators, washing/drying machines, freezers, air conditioners, microwaves and other small appliances such as toasters
e) Heavy equipment such as tractors, graders, backhoes and similar equipment
f) Other metals such as trailer frames, metal fencing materials, steel drums, copper and steel wiring, metal pipes and discarded plumbing materials

Not all metals will be eligible for the recycling program, however the community waste management program will implement proper disposal programs for non-recyclables.

The Business Plan

The Scrap Metal Recycling Project will be implemented in conjunction with an Automotive Repair Shop, a business venture that has been in the planning stages for some time. Economic developers in the community proposed the scrap metal recycling project to the entrepreneur who has since been considering this option. The cost of providing additional storage space for scrap metal recyclables was a major deterrence for this option. Storage space to accommodate ten and a half months of accumulated scrap metal would have to be constructed. The advent of the Community Scrap Metal Recycling Project has made this option much more feasible to the entrepreneur.

The plan is that the entrepreneur will operate the automotive repair shop and also an automotive parts salvage business. Non-running vehicles can be purchased for their parts value and removal of derelict vehicles can be offered as a service to the community. Once all usable parts are removed from a vehicle, they will be placed in storage to await compaction and then transport to a recycling center. The storage center will also include space for other recyclables as identified under the new community landfill waste management plan. Arrangements will be made with landfill operators for pickup of other scrap metal recyclables.

The business will also act as a depot for used automotive oil. The business will utilize a heating furnace that burns used automotive oil as fuel. In addition, the local economic development corporation will work with the business to develop a paper and plastics recycling program once the scrap metal recycling program is established. The Community Scrap Metal Recycling Pilot Project will be the catalyst to implementing the "A Clean Community is a Healthy Community" Initiative that has been proposed by the community previously.

The Scrap Metal Recycling Site

The scrap metal recycling site is situated on the North side of the community along a major byway known as Pantry Road which leads to Pantry Lake and then on to the new community landfill site. Attachment A consists of a map of the community showing the landfill site and the scrap metal recycling project site. The automotive repair and the automotive parts salvage business will be housed in a building that once served as the community hockey arena. The building is no longer in use and the Garden Hill First Nation has agreed to deed the building over to the business owner through a Band Council Resolution in return for accepting the Scrap Metal Recycling Project.

Attachment B contains pictures of the building. The building is 270 feet by 132 feet and is approximately 36 feet high. It has a steel frame with aluminum siding and a 14 foot by 12 foot entrance with sliding doors. The floor of the building is compacted gravel. The building is solid and will last for many years. The business owner will partition the interior to designate space for automotive repairs and salvage parts inventory. The costs of insulating the building, partitions and other requirements for automotive repair use will be borne by the automotive repair business start-up costs.

The yard will be located on the northern side of the building (see map) and this area can accommodate as much space as will be needed to store all recyclable materials. This area will be utilized as a storage yard as well as a salvage yard. A chain link fence will be purchased as part of the Garden Hill Scrap Metal Recycling Pilot Project. The fence will deter small children from entering the compound and injuring themselves. In addition, the fence is for protection of the business owner who will post signs on the fence advising the general public to enter at their own risk.

There are two access driveways to the compound and a road that completely encircles the building. Attachment C contains a detailed drawing of the building showing the storage yard, the access roads and the designation of space within the building. There is one residential unit that uses the access roads. On approval of the project, the First Nation will build a new driveway that will access the Bella Lake road immediately west of the residential unit.

As part of the assets of the business, the owner is purchasing a tow truck that will also be used to transport non-running vehicles to the compound. The pilot project will look into the purchase of a D6 Caterpillar loader with attachments for buckets and prongs. This machine will be required for transport of vehicles within the compound and for transport of the vehicles to the compactor site. It will also be required to load the compacted vehicles onto the flatbeds for transport to Winnipeg.

All transport of scrap metal recyclables to the compound will be the responsibility of the business owner. All costs and expenses of the scrap metal recycling project will be the responsibility of the business owner. All revenues generated by the sales of recyclable materials will be the property of the business owner. The Garden Hill Scrap Metal Recycling Project will be operated as a business in conjunction with the automotive repair enterprise.

Summary

The business plan for the Garden Hill Scrap Metal Recycling Project will be developed with the assistance Rick Penner of earthbound evironmentals inc. This company has been given the responsibility of managing the Community Scrap Metal Recycling Pilot Project which includes three other communities.

This content of this proposal differs from the normal proposal format due to the importance of this issue to the community. Community members who reviewed the original proposal recommended additional details that would normally have been contained in the business plan. This proposal desires to communicate to the readers the urgent need felt by the community to implement recycling initiatives that will halt the environmental damage that is being caused by derelict vehicles and accumulation of other scrap metals.

As an additional note, this community was not made fully aware of this pilot project until August 2002. At that time, the original proposal was developed. Community consultation regarding this proposal produced delays due to changes recommended by the public. It is hoped that these necessary delays will not jeopardize the participation of the Garden Hill First Nation in this very important pilot project.

Appendix B

Pictures of Scrap Metal in Each Pilot Community

GILLAM

CHURCHILL

RANKIN INLET

CORAL HARBOUR

Appendix C

Qualifications for earthbound environmental Inc.

earthbound environmental Inc. is a Manitoba-based environmental consulting firm specializing in providing integrated waste management services to both the public and private sectors. Company partners have over 30 years of combined experience in the design and implementation of waste management and recycling projects in Manitoba.

Relevant projects undertaken by earthbound environmental Inc. include the following:

Northern Manitoba Regional Waste Diversion Strategy
A regional recycling system was developed for seven northern communities including the preparation of Waste Diversion Strategies for Norway House, NCN, Gillam, Leaf Rapids, Wabowden, Fox Lake, and Split Lake (2001)

Recycling Program for the MacDonald Building
The development of a recycling program for a Federal building located in downtown Winnipeg for Public Works & Government services Canada (2001)

Waste Plastics in Manitoba - Key Factors in Sustainable Plastics Diversion
A study of factors influencing plastics recycling in Manitoba for the Manitoba Product Stewardship Corporation, Manitoba Environment, and the Environment and Plastics Institute of Canada (1999)

Town of Virden Material Recycling Facility Study
A material flow optimization and building assessment study on the Virden Recycling Facility for the Town of Virden (1999)

Solid Waste Management Strategy for the Pan-Am Games
A Solid Waste Management Strategy was prepared for the Pan-Am Games Environment Committee (1998)

Rural Manitoba Material Recovery Facilities Study
A study into Material Recovery Facilities in Rural Manitoba for the Manitoba Product Stewardship Corporation (1998)

City of Winnipeg Participation Rate Study
A study into residential recycling program participation rates in Winnipeg for the Manitoba Product Stewardship Corporation (1998)

Report on the Feasibility of Including Aseptic Packaging
A report on the feasibility of including aseptic packaging as an eligible material in the Manitoba Product Stewardship Program (1996)

MPSC Glass Strategy – Issues and Options for Manitoba
Prepared a report on options for dealing with the waste glass collected by recycling programs in Manitoba for the Manitoba Product Stewardship Corporation (1996)

The North Red River Basin Recycling System - Design Description & Costing
The design and implementation of recycling programs for East St Paul, West St Paul, St Clements (1995)

The Rural Municipality of Cartier Recycling System - Design Description & Costing
The design and implementation of a recycling program for the R.M. of Cartier (1995)

The Blue Water Recycling System
The design and implementation of a regional recycling program for the RM of Victoria Beach, LGD of Alexander, and Grand Beach Provincial Park (1994-95

Appendix D

Suggestions on Recycling Program Promotion and Public Education

The communications activities listed below are intended to help you to begin considering the promotion & public education (P&E) activities that will accompany your program. Promotions & education will be essential to the success of your recycling program as they ensure good participation rates, material recovery, and reduce program costs. Effective communication involves motivating residents so that they understand & accept the benefits of supporting your local recycling program, as well as conveying and repeating accurate information so that residents know exactly how to participate in the program. Some communication should occur prior to the program launch to prepare and inform your community about the up-coming, new service.

Activity	Description	Purpose
Community Outreach		
	• portable display conveys information; book display space at community events, trade shows, schools, library, malls, summer camps, community gardens, etc. • could train community volunteers to staff displays	• inform & educate, opportunity for the public to receive answers to their questions, exposure/publicity
	• deliver presentations in the community • could employ summer students through federal, provincial, and/or band student employment programs to deliver presentations	• provides education & instruction to residents; question & answer opportunity; municipality/band receives qualitative feedback on program
	• official program launch; invite local leaders, businesses (examples include businesses where residents can recycle used oil, used tires, and scrap metal as well as thrift stores to promote reuse in addition to recycling), local environmental	• promote new service, make announcement, involve community, celebrate an accomplishment

	• advertised, staffed telephone information service • recorded message providing program specifics; opportunity for public to leave message (ex. ask a question) that is	• answer questions from public, respond to problems, educate & instruct
	• host or sponsor an event such as an artwork contest, Earth Day, Environment Week, a science fair	• outreach & education, exposure/publicity, target specific audience such as children and parents or teachers
	• schools could register with this service offered by the Manitoba Product Stewardship Corporation which offers specific funds to schools to help establish school recycling	• educate children & youth about the importance of recycling through hands-on program; achieve resource conservation in
Media Opportunities		
Advertising (print & radio)	• submit ad copy to daily or weekly newspapers, commercial publications, and radio stations	• reach a large, specific market (adults, youth, or children depending on ad)
News release & public service announcements*	• information/announcement provided to print, television, and radio media	• provide news item
Newspaper articles*	• stories about recycling program	• provide information & community examples, discuss issues
Open line radio show*	• live, phone-in discussion, questions & answers	• promotion & education
Print Materials		
Billboard	• highly visible message	• raise awareness, communicate specific message
Brochure/flyer, decals, fridge poster, utility bill insert	• items printed & distributed to residents and/or local businesses; can range from simple to complex messages	• educate & instruct

Placemats	• print messages on paper restaurant placemats; activities for children	• raise awareness & instruct, reach general audience in a casual setting
Poster	• print messages to post in specific locations	• communicate specific recycling instructions such as what to do with used oil, used tires, and scrap metal (could post at recycling depots, gas stations & garages, city hall, band office, etc.)

Appendix E

Letter to First Air

August 21, 2002

Mr. Bruce Stevenson
First Air
2020 Sargeant Ave.
Winnnipeg, MB, R3H 0C9

SUBJECT: Backhauling Recyclable Materials from Rankin Inlet

Dear Mr. Stevenson,

As we discussed on the phone yesterday, our company has been hired to assist in the development of a recycling initiative in Rankin Inlet. We are looking primarily at the development of a system for recycling scrap metal although recycling residential materials such as aluminum cans and paper products is also being discussed.

There are many environmental and economic benefits of implementing such a program in Rankin including:

- A reduction in the amount of material sent to landfill (reducing the available quantity of potential litter)
- The conservation of natural resources
- Reduced landfill cost
- Job creation

As you well understand, the biggest challenge associated with developing a recycling program in a remote community is the issue of transportation. The money available from the sale of recyclable material is insufficient to cover the shipping costs if standard rates are applied. It is critical for these initiatives to succeed, therefore, to find companies willing to help out by shipping the recyclables at nominal or no cost.

In this regard it is very encouraging that First Air may be interested in supporting the recycling initiative in Rankin Inlet by providing free backhaul of recyclable material to Winnipeg. While the actual quantities of material shipped by First Air would likely be relatively small (by normal air cargo standards) the impact that this arrangement would have on the viability of a recycling initiative in Rankin would be significant.

(over)

It is recognized that there would need to be several stipulations that would need to be in place for the agreement to work. These include:

1. M&T would need to prepare and load any material to be shipped to ensure it is properly packaged
2. Backhauling opportunities would be limited to times when space and time to load are available
3. The arrangement would need to be easy and convenient for First Air staff
4. All material flown to Winnipeg would be promptly picked up at the First Air cargo center.

Implementing a recycling program in Rankin will likely not begin until next spring. I am trying to make as many arrangements as possible at this point, however, to include in a report that I am preparing on the viability of the proposed initiative.

Please provide written confirmation regarding the willingness of First Air to provide the backhaul services for a recycling program in Rankin. Also, please confirm the terms and conditions that would need to be in place if an agreement can be reached.

Thank-you very much for considering this proposal. If you have any questions please call me at (204)774-0372.

Best regards,

Rick Penner,
earthbound environmental Inc.