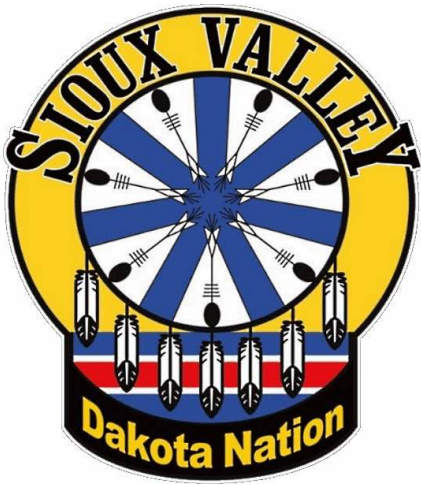


Sioux Valley Dakota Nation DRAFT Waste & Recycling Plan

November 6, 2018



Created for
Sioux Valley Dakota Nation
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1. INTRODUCTION

The people of Sioux Valley Dakota Nation (SVDN) feel a deep sense of responsibility to the land, the water, and the air. Taking on that responsibility and keeping these things clean goes to the heart of what it means to be Dakota. There is a sense of frustration that we have not had a system for waste diversion and recycling in our community before now. This plan intends to change that.

This is the plan for implementing a long-term, comprehensive community Waste & Recycling Program for Sioux Valley Dakota Nation. Once implemented, this program will enable SVDN to manage and recycle all our wastes in a sustainable, cost-effective manner.

This plan includes an outline of the approach we propose to take, a listing of materials, equipment and people we will need, as well as a proposed timeline and costs so that we will be ready to implement that Plan.

1.1. *Objectives / Principles*

These are the overarching principles and objectives which this plan intends to achieve:

- We will not have a landfill on our territory.
- We will work to reduce the amount of material that comes into the community and leaves as waste that must go to landfill.
- We will divert any recyclable material that we can't use locally to a PRO or other organization that can make use of it for something other than landfill.
- We will maximize community participation and local employment in our diversion system.
- We will seek innovative way to maximize the use of diverted waste material locally.

2. CURRENT STATE

Currently there is no official recycling or organic waste diversion in Sioux Valley Dakota Nation (SVDN). Unofficially and for some time, individuals and some institutions have been diverting recyclables and taking them themselves to places that will accept recyclables.

Figure 1: Illegal Dump Site



2.1. *Current and Legacy Landfill Sites*

The community landfill that is currently in use is near end-of-life. It has been in operation for approximately 10 years. There are two dumping locations at the landfill: one is for household, business, and institutional waste. The second is an area at the northern end of the site for construction waste and white goods. The source of the construction material is mostly from renovation activities of the band's housing department. There are also three Legacy dump sites and two illegal dump sites.

2.2. *Waste Generating Locations*

There are about 350 homes and 10 community businesses and institutions from which waste is collected:

- SVDN School
- Diner
- Dakota Oyate Lodge
- Gas bar
- Finance
- Health Centre

- Band Hall
- Police station
- Child & Family Services
- Daycare

There are no businesses or institutions that generate waste on a regular basis that needs special handling. (e.g. no oil change shops) However, there are two slight exceptions:

- Used fry oil from the diner is being stored on-site at the diner.
- The Public Works garage generates used oil from their own operations. They also allow community members with vehicles to change their oil at the Public Works garage. This oil is stored in 50-gallon drums on-site. They fill about four of these barrels every year.

2.3. *Waste Collection*

Waste is collected according to a regular weekly schedule:

- **Monday**
 - About 120 homes + 2 apartment buildings + 10 community businesses and institutions
- **Tuesday**
 - About 70 homes + 10 community businesses and institutions
- **Wednesday**
 - About 100 homes + 10 community businesses and institutions
- **Thursday**
 - About 60 homes + 10 community businesses and institutions
- **Friday**
 - 2 apartment buildings + 10 community businesses and institutions

Figure 2: Current Waste Collection Truck



Currently, household and business / institutional waste is put into Safeway or green garbage bags inside homes, businesses, and institutions and then taken outside to a wooden garbage box. Approximately 1,800 – 2,200 large garbage bags are collected each week. Seventeen to 20 1-tonne truckloads/week. We do not record weights.

Figure 3: Locally Built Waste Collection Box



There are locally, hand-built wooden boxes at each home, business, and institution throughout the community. Each one has been individually built. There is no common size. However, the boxes at the apartment buildings are larger than at any residence. Each apartment building has 4 boxes that are about 8' x 3' x 3'.

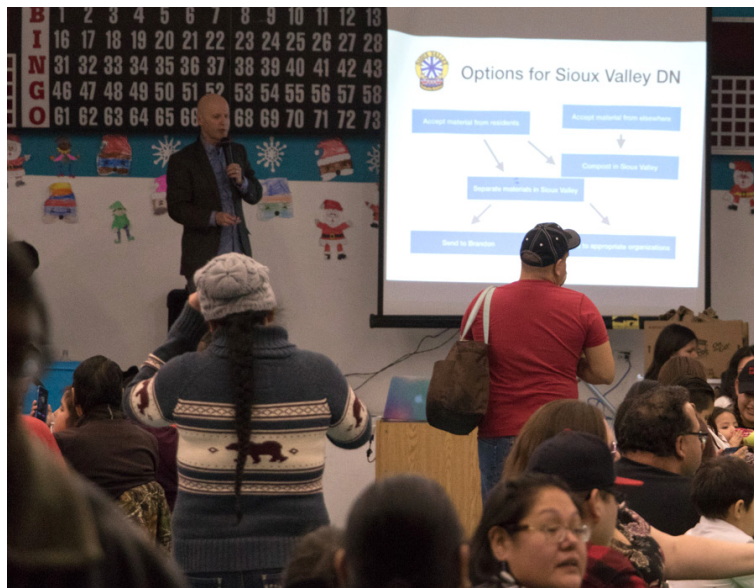
3. THE PLAN

Implementation of the following plan will result in a long-term, sustainable, comprehensive, and cost-effective system for waste diversion and recycling for the community of Sioux Valley Dakota Nation (SVDN).

3.1. Plan Development

Over the years, various people from Sioux Valley Dakota Nation have attempted to set up a waste diversion and recycling program in the community. This current project started in September 2017 under the direction of Dean Mini, SVDN Public Works Supervisor.

Figure 4: Presentation at Veteran's Hall



The project to create this plan was funded & supported by Indigenous Services Canada (ISC).

Monday December 11 2017 - The proposal to develop a new Waste Diversion and Recycling System was introduced to about 500 community members in a presentation by Curt Hull (Boke Consulting) during the annual [SVDN Community Christmas Dinner](#) in the Veterans' Hall.

Friday February 9 2018 - Core Team was set up to discuss and direct planning. The Meeting #1 was at the SVDN Self- government offices. These people were in attendance:

- Elton Taylor - SVDN Self-governance Councillor
- Marge Roscelli - Health Director, respected elder
- Dean Mini - Public Works Supervisor
- Rollie Bunn - SVDN Waste Collection
- Della Mansoff - Executive Director, Dakota Oyate Lodge
- Denny Pratt- Dakota Oyate Lodge Maintenance

- Donald Elk - Sioux Valley High School Maintenance
- Cheyenne Ironman - CIER, Youth representative
- Misty Wasteste - Dakota Tiwahe Services
- Blaine Wombdiska - SVDN School Custodian / Maintenance
- Bill Taylor - SVDN Self Government Liaison Worker
- Gerald Thunderbirdsky - Information Technology (IT) assistance
- Curt Hull / Bruce Duggan - Boke Consulting

NOTE: After that initial meeting, we have been joined by additional contributors:

- George Blacksmith, Public Works Acting Supervisor
- Ward Pratt, Sioux Valley School Principal

Friday February 16 - Core Team Meeting #2. Curt Hull joined local Team members via Zoom.

Tuesday March 13 2018 - Municipal-Type Service Agreement (MTSA) training was provided for the Core Team by CIER at the SVDN Self-government offices.

Figure 5: Display At SVDN Open House



Wednesday March 14 2018 - Della Mansoff, Denny Pratt, and Curt Hull met with Grant Burton from Overland Waste & Recycling and with Scott Phillips (Councillor, RM of Sifton). We discussed the possibility of renting containers and hauling services from Overland. We subsequently received a quote from Overland. We also discussed the possibility of setting up an MTSA with the RM of Sifton rather than with Brandon.

Wednesday March 28 2018 - Displayed at SVDN Open House at the Veterans' Hall. We had a PowerPoint of the Plan projected on the wall and continuously cycling. We invited attendees to fill in a Waste & Recycling Survey. We received 34 responses. These have been tabulated and the results are below. In the responses, there was a virtually unanimous level of support for the creation of a recycling system. All, except one respondent, said they would bring material to a Recycling Depot.

Here are the comments we received:

- “Would like to see more effort in maintains cleanliness around dump site and even the road going to the site. Recycling has always been a concern of my families and we do it on a regular basis, and take recyclables to Brandon. I would personally like to see this option at our facility. Same with a used oil depot.”
- “Would like to see recycling in community”
- “It would be good...to start”
- “Would be good jobs”
- “I’m very interested, my wife & I were planning or had same ideas on starting a Green Party for S.V.D.N. eg: recycling, greenhouses, waste management etc., etc.”
- “Already Recycle. Take to Brandon”
- “There is a very big need for recycling. I would like to recycle at home, start there and have my family participate, especially the young ones. Grandchildren. And also to teach them why recycling is needed in the home, community, etc.
- “Having recycle is beneficial. less waste and reduce hazardous waste.
- “If it creates employment it will be good”
- “As a 1st Nation community, we need to focus on our environment as we have a small land base. Plans for people to take recyclable items and even larger items (furniture, appliances, electronics) etc.”
- “Would this be pop bottles, plastics, cans and will people get paid to bring them like they do in Saskatchewan?”
- “Recycled materials is a must - so much toxicity in the air when the wind blows toward the community. Unhealthy for babies/people with lung problems. We need to think of our environment. Such a small land base. Landfills should be shut down.”

3.1.1. SURVEY RESULTS

Table 1: Survey Results

| Question | I'm not concerned /interested | I'm sort of concerned /interested | I'm quite concerned /interested | I'm very concerned /interested | Total Responses |
|---|-------------------------------|-----------------------------------|---------------------------------|--------------------------------|-----------------|
| The landfill (dump) is not managed. Is the current state of the dump a concern to you? | 6 | 7 | 7 | 14 | 34 |
| Is the way we manage waste and recycling in the community now of concern to you? | 4 | 6 | 5 | 19 | 34 |
| Does it concern you that the only thing we do with waste is put it in the dump? | 4 | 2 | 9 | 19 | 34 |
| Would you like to see a system for recycling established in our community? | 0 | 1 | 5 | 27 | 33 |
| If a recycling system was established, would you bring things to a recycle depot? | 1 | 3 | 3 | 27 | 34 |
| If a recycling system was established, would you like to have household pick up? | 1 | 2 | 6 | 24 | 33 |
| If we set up a recycling depot, there would be jobs sorting material. Would you be interested in this kind of employment? | 5 | 5 | 4 | 18 | 32 |

Friday April 6 2018 - Core Team Meeting #3 to review SVDN Waste & Recycling Plan v0.02 of this plan. Curt Hull joined local Team members via Zoom.

Thursday April 12 2018 - Core Team Meeting #4 to review SVDN Waste & Recycling Plan v0.03. Curt Hull joined local Team members via Zoom.

Thursday August 30 2018 - George Blacksmith, Acting Public Works Supervisor and Ward Pratt, SVDN School Principal joined the Core Team. Curt Hull, Della Mansoff, Misty Wasteste, Rollie Bunn met with George and Ward.

Friday, September 28 2018 - - Core Team Meeting #5 to review SVDN Waste & Recycling Plan v0.05. Curt Hull from Boke and Shianne McKay from the Centre for Indigenous Research (CIER) joined local Team members George Blacksmith, Marge Roscelli, Della Mansoff, Misty Wasteste, Rollie Bunn, and Cheyenne Ironman (who also works for CIER).

3.2. Plan Outline

Our plan consists of the key elements listed below. These elements will not necessarily be implemented in the order shown. We have included additional details further in this document under the same numbers and headings as below:

- **Awareness, Education, & Involvement**
 - Develop and deliver an education and promotion campaign in anticipation of installation of waste diversion and collection.
- **Develop Agreements and Relationships**
 - We will develop agreements and relationships with Producer Responsibility Organizations (PROs). We will ensure we have the proper containers and hauling methods to allow PROs to accept material.
- **Address Current and Legacy Waste Sites**

- These sites need to be assessed as to their need for ongoing monitoring or remediation.
- **Set Up Collection Points**
 - To minimize the number of loads shipped to a nearby municipality, we will set up a Transfer Station (AKA Recycling Depot) facility where waste and recycling can be accumulated. Appropriate waste diversion containers will also be placed in a few other locations in the community. (e.g. Public Works, School, Dakota Oyate Lodge, Diner / Gas bar)
- **Set Up Household Collection Bins**
 - We will make modifications or additions to the waste bins at people's homes and throughout the community to make them ready to accept recyclable material.
- **Start collecting and Hauling**
 - We will set up a system where both waste and recycling will be collected from households, businesses, and institutions on a regular schedule. We will collect recyclables from the local drop-off containers and from households and take them to the Transfer Station. We will ship accumulated waste and recyclables from the community to the municipality on the Municipal Type Service Agreement (MTSA) facility and to the PROs.
- **Collection Drives**
 - We will encourage people to collect targeted items. (e.g. e-waste & batteries, white goods) We will collect these from households and drop-off points as part of specific, well-advertised community collection drive events.
- **Organics**
 - We will develop organic waste diversion system including composting and gardening. This may include greenhouses, household gardens, community gardens, household composting, community composting, and potentially in-vessel composters.
- **Reuse, Repurpose and Reduce**
 - We will develop ways to maximize the use of recyclables in the community itself (e.g. plastic for bricks) Campaign to reduce the amount of waste coming into the community. (e.g. reusable vs single-use shopping bags)
- **Sorting Station**
 - We will find a suitable location for, design, build, staff, and commission a Sorting Station. This station will allow collection of a broader range of materials and enable sorting.

3.3. Timeline

This document describes the overall intention and elements of our waste and recycling system. Its implementation will be according to the proposed approximate timeline. The main intention is to implement a system that is functioning successfully and has good community acceptance and participation. All aspects of timing will depend upon the success of earlier elements and whether or not the community is looking to expand the system.

3.3.1. TIMELINE SUMMARY

Table 2: Timeline Summary

| Area of Focus | | Year 1 (Engage & Prep) | Year 2 (Build & Start) | Year 3 (Deeper engage) | Year 4 (Sorting) |
|---------------|---|---|--|---|-----------------------|
| 1 | Engaging the community | Review & discuss Plan. Add details. Community & school presentations & meetings | Review & improve Plan annually | | |
| 2 | Reducing and reusing | Develop school curriculum | Work with Diner to change takeaway containers | Open swap "store" | Review & improve |
| 3 | Staffing | Choose staff; begin operations; begin training | Continue operations & training; supplement staff with Work Opportunity Program (WOP) participants & summer students; develop Standard Operating Procedures (SOP) | | |
| 4 | Managing external agreements | Secure agreements with PROs | Prepare & ship materials | Consider MTSA with nearby WMF | Review agreements |
| 5 | Creating recycling & waste boxes and stations | Build & distribute household boxes | Set up Drop-off points | Repair & replace community & household boxes, as needed | |
| 6 | Implementing waste management system | Choose and purchase equipment & supplies | Build Transfer Station and Implement collection & waste management | Begin in-vessel composting | Build Sorting Station |
| 7 | Monitoring current and legacy waste sites | Choose monitoring company | Take & send samples for analysis annually | | |

4. PLAN DETAILS

4.1. *Awareness, Education, and Involvement*

The success of this program will depend largely upon how much support it receives from the community. We feel that there are three aspects that must be included in our project if we hope to have our people support the project: Awareness, Education, and Involvement.

4.1.1. **AWARENESS**

This means making people conscious of why waste diversion is important. These are the primary ways we will build awareness:

- Posters in the community
- Public service announcements (PSA) on the local SVDN radio station
- Drop-off collection bins in public places

4.1.2. **EDUCATION**

We will work with the Centre for Indigenous Environmental Resources ([CIER](#)) and the [Green Action Centre](#) and their “Community Pathfinder First Nations Waste Minimization Project” to deliver waste, recycling, and composting education within the community.

4.1.3. **INVOLVEMENT**

Getting people actively involved will help to build a sense of ownership and connection to the project. A primary way to get people involved will be through community collection drive events like Spring Cleanups and Round-ups. (See Section 8: *Collection Drives* below)

4.2. *Develop Agreements & Relationships*

We need to ensure that there are appropriate places to take our landfill waste and diverted materials before we change from the current system. This means talking to, developing relationships with, and in some cases establishing contracts with, organizations and agencies outside our community.

4.2.1. **PRODUCER RESPONSIBILITY ORGANIZATIONS (PROS)**

We will ensure we have the proper containers and hauling methods to allow PROs to accept material. Each PRO has different requirements for containers and packaging in order to accept our diverted material. The Green Action Centre Pathfinders and their [Recycling Toolkit for Manitoba First Nations](#) provides a full set of guidelines and forms from all of the PROs.

There are twelve PROs in Manitoba. Each has a responsibility for and receives funding to manage waste related to specific products:

- **Call2recycle**
 - household batteries
- **Canadian Battery Association (CBA)**
 - car batteries
- **CleanFarms**
 - agricultural chemical containers
- **Electronic Products Recycling Association (EPRA)**
 - electronics
- **Manitoba Association for Resource Recovery Corp (MARRC)**
 - waste oil and oil filters
- **Medications Return Programs (MRP)**
 - medications and pharmaceuticals
- **Multi-Material Stewardship Manitoba (MMSM)**
 - household recyclables
- **Tire Stewardship Manitoba (TSM)**
 - tires
- **ProductCare**
 - household hazardous waste
- **Recycle Everywhere**
 - beverage containers
- **RecycleMyCell.ca**
 - cell phones
- **Thermostat Recovery Program (TRP)**
 - mercury switches

Figure 6: The 12 PROs



We will establish contact with each of these agencies and make preparations to collect and ship product in accordance with each agency's requirements.

4.2.2. MUNICIPAL-TYPE SERVICE AGREEMENT (MTSA)

As soon as our Transfer Station is operational, we will stop depositing material in the local landfill and will begin hauling waste and diverted material to a nearby municipality. We will begin by hauling to the City of Brandon Material Recovery Facility and Eastview Landfill Site at 765 33rd Street East.

In order to reduce costs, we will contact Brandon and other nearby municipalities to investigate whether or not negotiating a Municipal-Type Service Agreement (MTSA) would be to our benefit. An MTSA would need to be negotiated on behalf of Council and signed by our Chief. After we have built a Sorting Station and have the ability to divert more recyclables, we will modify the MTSA.

We have sought guidance and training on this process from the Centre for Indigenous Environmental Resources (CIER). We have been working with Valeria Kuzivanova and Laren Bill from that organization.

4.3. Address Current and Legacy Waste Sites

The community landfill that is currently in use is near end-of-life. It has been in operation for approximately 10 years. There are two dumping locations at the landfill: one is for household, business, and institutional waste. The second is an area at the northwestern end of the site for construction waste and white goods. The source of the construction material is mostly from renovation activities of the band's housing department.

Figure 7: White Goods at the Current Landfill



Figure 8: Pit at the WMF



There are also three Legacy dump sites and two illegal dump sites. These are the locations of all of the dump sites:

Table 3: Dump Sites

| Location Name | Latitude | Longitude |
|----------------------|----------|-----------|
| Legacy Dump Site #1 | 49.8143 | -100.5224 |
| Legacy Dump Site #2 | 49.8289 | -100.5039 |
| Legacy Dump Site #3 | ? | ? |
| Illegal Dump Site #1 | 49.873 | -100.496 |
| Illegal Dump Site #2 | 49.8681 | -100.4960 |
| Current Landfill | 49.8282 | -100.5315 |

We will need to assay the legacy and illegal sites. This will be done as a limited Phase II Environmental Site Assessment and Long Term Management of Waste Sites project. The purpose of the project will be to undertake groundwater and surface water sampling through a Phase II Environmental Site Assessment (ESA) at the waste sites in Sioux Valley. The ESA will assist us in determining if leachate migration is occurring at any of the sites, and if so, to identify if there are any immediate human health and environmental impacts.

4.4. Set Up Collection Points

4.4.1. TRANSFER STATION

A solid waste Transfer Station is an installation where solid wastes are deposited temporarily before being transferred out for further processing or disposal.

NOTE: The location of the Transfer Station and/or the Sorting Station may also be referred to as a Waste Management Facility (WMF).

At our Transfer Station, solid wastes will be received from community members and from our vehicles collecting from households and public drop-off bins. The material will be deposited or moved from the collection vehicle into larger containers suitable for transfer-haul.

Transfer-haul vehicles will transport the solid wastes to a final solid waste disposal or processing facility. Our transfer-haul vehicle will be able to transport roll-on-roll-off containers.

The drop-off and collection system we propose is based upon the use of blue plastic recycling bags. (See *Blue plastic recycling bags* below.)

We will develop our Transfer Station in accordance with the Standards for Transfer Stations in Manitoba. Although it may not strictly be required on Dakota territory, we will work with the Manitoba Department of Sustainable Development to go through the process required to receive a Transfer Station Permit.

It will be important that there be enough room for vehicles from the public to come in for material drop-off without interfering with Transfer Station operations. An excellent design example to draw from is the Transfer Station in the Rural Municipality (RM) of Rockwood near Stonewall. See *Appendix A: Rockwood Transfer Station Layout*.

This is a summary of the requirements:

We will apply for a Transfer Station Permit by completing and submitting the Permit application form including the information set out in Schedule A of the Waste Management Facilities Regulation (MR 37/2016) under The Environment Act.

The Transfer Station will be situated with adequate setback. The Transfer Station needs to be setback 30 metres from any potable water well, building, or surface water.

A detailed geotechnical investigation is not required for the construction of a Transfer Station; however the soils will be evaluated to ensure the base is stable enough for its use. Depth to groundwater should also be noted on the application, and if there are any locations where bedrock reaches the surface.

Vehicle access points and associated driving surfaces must be adequately compacted to bear the weight of heavy trucks, and storage locations of materials or containers will be adequately stable to bear the weight of full material bins.

The design and construction of our Transfer Stations will be reviewed by qualified professionals who understand and can identify potential factors that may harm the environment, and can provide methods to reduce actual or potential harm and incorporate these methods into the design.

The layout of the Transfer Station will consider the types of materials that will be handled at the facility and the appropriate method of containment for the materials. Basically, the station will be designed to accept and contain material collected as above and materials dropped off by individuals.

The Transfer Station will have containers that are leak proof, vector proof and provide a means of covering the waste materials.

Design consideration is also required for the storage and handling of other materials at the transfer facility (eg. recycling, burn areas, tires, e-waste, hazardous wastes, etc.) which would have storage considerations, and may have additional registration or licensing requirements.

4.4.1.1. Location

We will select a location that is suitable for both the Transfer and Sorting Stations together. We will develop the Sorting Station alongside the Transfer Station in such a way that allows continuous, uninterrupted operation of the Transfer Station.

We have considered five potential locations for the Transfer Station. Each location has its good points and its negatives:

- **Former White Eagle Store**

- *Pros:*

- It is centrally located near an all-weather road. It still has a concrete pad in good condition. The yard adjacent to the pad was set up for cars and parking which means it still has a good gravel base.

- *Cons:*

- It is too close to people. There is at least one residence less than 400 metres from the concrete pad.

- **Former Landfill Site**

- *Pros:*

- Since it was previously commissioned as a landfill, it should meet all of the requirements for locating a

Transfer Station. This includes being far enough away from residences that it won't be a nuisance.

- *Cons:*

- The access road will need work. When it was decommissioned, the access road was cut off from the main road and has since grown over. It is about 300 metres from the main road and will need to be surveyed and assessed for its suitability for a Transfer Station.

- **Public Works Yard**

- *Pros:*

- Is centrally located with easy access and good roads. It has a yard built for heavy equipment that is well-maintained. It is already used for collection of waste oil, tires, and construction material. It is the source of the majority of these materials in the community; both from Public Works operations and because community members use the garage to change tires and oil on their vehicles.
- *(Note: Even if the Public Works Yard doesn't become the primary location, it will still be a suitable collection and transfer location for waste oil, tires, and construction waste.)*

- *Cons:*

- It is too close to residences for use as the main Transfer Station.

- **PetroCanada**

- *Pros:*

- Easily accessible near all-weather, well-maintained roads including the Trans-Canada Highway.

- *Cons:*

- The available land has been allocated for other development by SVDN.

- **Current Landfill**

- *Pros:*

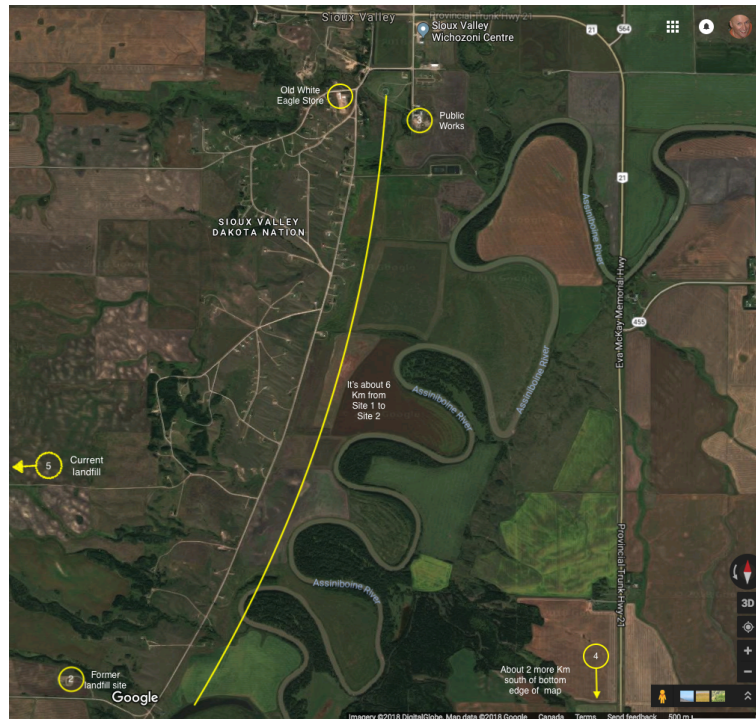
- Since it is commissioned as a landfill, it should meet all of the requirements for locating a Transfer Station. This includes being far enough away from residences that it won't be a nuisance.

- *Cons:*

- The road to it is not in good condition. In addition to the construction of the Transfer Station, over 2 km of roadway would need to be upgraded.

We are recommending that the majority of the diverted material be collected at a Transfer Station at **Location #2 - Former Landfill Site**. (Legacy Dump Site #1, 49°48'51.5"N 100°31'20.6"W). As noted above, some material will continue to be collected and managed at **Location #3 - Public Works Yard**

Figure 9: Map of Five Potential Transfer Station Locations



4.4.1.2. Fencing

The site will need to be fenced to provide control over the site.

4.4.1.3. Material Containers

The Transfer Station needs containers for accumulating the following waste and recycling items that will be collected by Public Works on a weekly schedule:

- Landfill waste
- Commingled household recyclables
- The Transfer Station will also need containers for accumulating these “Special” items:
 - eWaste and small batteries
 - White goods
 - Cardboard
 - Beverage containers
 - Household Hazardous Waste (See Appendix 2)

Special wastes will be segregated and stored at the Transfer Station until enough material accumulates to warrant it being transfer-hauled to the appropriate Producer Responsibility Organization (PRO).

We will provide a special container for HHW at the Transfer Station. We will work with ProductCare and Miller Environmental to ensure that these materials are removed from the community safely and on a regular basis.

Roll-On-Roll-Off Bins are versatile collection and storage bins that can be used as recycling collection bins, as construction waste bins, and as storage bins for recyclables. Once they are full, they can be pulled onto a trailer or truck for hauling to other waste management and recycling facilities.

4.4.1.4. Structures

In addition to the containers for landfill waste and commingled recycling, we will need structures to protect the workers and to store equipment and other items at the Transfer Station. We could move and repurpose sea-containers that are already at Public Works. However, those containers are already being used for other purposes. The safest bet would be to use refitted sea-containers would be the most economical and easiest solution.

Figure 10: Sea Container 20ft. Combo Office Building



4.4.2. PUBLIC WORKS YARD

These commodities will be collected at Public Works:

- Waste oil
- Construction waste
- Shingles
- Tires
- Car batteries
- Scrap metal

Community members should also be able to bring in and drop off “Special” items to the Transfer Station or at the Public Works yard.

4.4.3. **DAKOTA OYATE LODGE**

We will collect used mattresses at the Dakota Oyate Lodge. These will be transported to Mother Earth Recycling in Winnipeg. For a per mattress fee, Mother Earth will take the mattresses apart and recycle the component parts.

Figure 11: Storage Shed at Dakota Oyate Lodge



In order for the mattresses to be accepted, they need to be kept dry. We will keep them in a shed/garage that is on the Lodge property until we have enough for a load to Winnipeg.

Typically, we will collect mattresses during collection drives or if delivered to the Lodge.

4.4.4. **DROP-OFF CONTAINERS**

Facilities for diversion such as recycle bins will not be distributed into the community until a complete collection system has been established and is ready to be rolled out. We don't want people putting recyclables into containers unless we have a system for collecting those materials.

We will construct and place Drop-off collection bins at strategic locations in the community to accept blue bags of recyclables.

We will start with these three drop-off locations:

- School
- Diner/Gas bar
- Dakota Oyate Lodge

Figure 12: Four Cubic Yard Dumpster (For Scale)



We will build our own Drop-off collection bins. These will be wooden and will be placed alongside the existing wooden waste container boxes. The collection bins we place in these locations should be no larger than necessary. We are thinking 4 cubic yards. By limiting the size, we discourage people from using them to dispose of inappropriate items like furniture.

The containers will be painted a distinct colour such as blue and will have a recycling symbol on them. We will design a logo that blends the SVDN logo with the recycle symbol.

Figure 13: Locally Built Waste Collection Box



4.5. Set Up Household Collection Bins and Bags

There are already locally, hand-built wooden boxes at each home, business, and institution throughout the community. As we prepare for household collection, we will broaden the usage of the wooden garbage bins currently in use. In addition to providing people and institutions with blue recycling bags and tubs, we will modify their garbage bins.

We will add a metal sign with a recycling symbol to the boxes. These signs will be attached to the bin by a leather or canvas hinge on the edge of the box under the lid. If there is no recycling in the box, the sign would be flipped into the box. However, if the homeowner has put a blue recycling bag into the bin, they would flip the sign out making it visible.

On recycling day, the operator of the recycling collection truck would be able to see the sign at a distance and would know to stop and collect. We could also use these signs during community Collection Drives as a an indication that the household or establishment has something to contribute.

4.5.1. SVDN RECYCLING LOGO

We propose a logo to represent our approach to waste that reflects our Nation and our Indigenous perspective. It is based on the 4Rs:

- **Reduce**
 - Wherever possible, waste reduction is the preferable option.
- **Reuse**
 - If waste is produced, every effort should be made to reuse it if practicable.
- **Recycle**
 - Recycling should only be considered for waste which cannot be reduced or reused.
- **Recover**
 - It may be possible to recover materials or energy from waste which cannot be reduced, reused or recycled.

Figure 14: SVDN Recycling Logo



NOTE: Composting is an example of both *recycling* and *recovery*. It is recycling because the waste is reformed into a new material (compost) which is different from the original (waste). It is also an example of recovery because the compost has value as a soil improver and has been recovered from the waste.

4.5.2. BLUE PLASTIC RECYCLING BAGS

The drop-off and collection system we propose is based upon the use of blue plastic recycling bags. This is essential to enable operators to distinguish recyclable material from landfill waste. They also make transfer of material by hand from the drop-off containers and from the truck to the transfer-haul containers at the Transfer Station.

Each drop-off location will be supplied with blue recycle bags. They will also get tubs and receptacles that fit these bags for use within their facility. Bags will be filled within each of the buildings and then taken out to the drop-off receptacle.

Figure 15: Blue Recycling Bags



Similarly, we will supply community members with blue bags and tubs. They will be invited to put these bags in their household collection bins on recycling collection days, or to bring these bags to the drop-off containers at the Lodge or Diner or to the Transfer Station.

4.6. Start Collecting and Hauling

We will ship accumulated waste and recyclables from the Transfer Station to a nearby Municipal Waste Management Facility and to the PROs. There will also be Collection Drives throughout the year.

4.6.1. COLLECTION

Figure 16: Current Waste Collection Truck



Collection from these bins will be done by transferring blue bags from the Drop-off bins to the collection truck by hand. The collection truck will take the blue bags to the Transfer Station. There the bags will be transferred by hand to the larger containers used to haul the material out of the community.

Collection from the Drop-off bins will be once a week or if the Drop-off location management calls Public Works for a special collection.

Household waste will continue to be collected according to the current schedule. However, instead of going to the landfill, this material will be transferred to a larger landfill waste container at the Transfer Station.

We will add a second truck and operator to the collection system. If we have a second truck for collection of recyclables, recycling could follow the same schedule as waste collection.

We considered an alternative approach of adding a trailer for recyclables behind the current waste collection truck. Currently, many household waste boxes are close to people's homes. In order to do the collection, the truck needs to drive down narrow lanes and turn around in tight spaces. In order for a trailer solution to be workable, all of the household waste boxes would need to be moved to the main roadways.

Figure 17: RM of Louise Waste Collection Truck With Trailer



4.6.2. HAULING

We will establish our own hauling capability. This will mean purchasing a truck outfitted for roll-on-roll-off containers. We will also need at least two containers at the Transfer Station. The truck and containers will need to be compatible with the each other. The truck must have the capability of moving each container on or off itself.

An alternative would be a trailer that could be used for transporting the roll-on-roll-off containers.

Figure 18: Trailer for Roll-On-Roll-Off Containers



We will haul landfill material and commingled recyclables to the nearby municipality.

We will also ship to PROs in containers acceptable to the PRO or the PRO will make arrangements to use their pickup agency.

4.7. *Collection Drives*

Getting people actively involved will help to build a sense of ownership and connection to the project. A primary way to get people involved will be through community collection drive events like Spring Cleanups and Round-ups.

4.7.1. **CLEANUPS**

Through the schools, we will organize a Spring Cleanup event. We will work with the Canadian Beverage Container Recycling Association ([CBCRA](#)) on this. CBCRA has a program to work with 10 communities per year to assist them with spring cleanup events with their [Recycle Everywhere](#) people.

We will organize this to be an annual event with focus on the schools but which involves the entire community.

4.7.2. **ROUND-UPS**

We will organize days where we encourage people to put specific, targeted items out for collection. During these events, we will target items such as eWaste (i.e. electronics), mattresses, appliances, and Household Hazardous Waste (HHW). People could also drop them off at collection points.

4.8. *Organics*

Organic material such as food waste constitutes approximately 40% of the residential waste stream for most Canadian communities. If we divert organic (i.e. biodegradable) material away from the landfills, we will achieve environmental benefits including a reduction of methane gas emissions. In a landfill, methane is produced when organic waste decomposes without oxygen (i.e. anaerobically) after it is covered over. Methane has 25 times the global warming potential as compared to carbon dioxide. Also, organic waste in a landfill produces leachate which could contaminate groundwater. If we divert organics away from the landfill, we can produce compost.

As of this writing, the Centre for Indigenous Environmental Research (CIER) is commencing a food sovereignty project in our community. The project will include organic waste diversion, composting, a greenhouse, and gardening. We intend to integrate the implementation of our Waste and Recycling program with the CIER initiative.

4.8.1. **COMPOSTERS**

There are three possible routes we could go with composters. the CIER initiative may decide on one, two, or all of the options.

- **Home compost bins**
 - We may make home composters available to households who would like to produce compost from their own vegetable food waste. Plastic, domestic compost bins retail for \$100 or less depending upon the style. It is also possible to build

composters out of wood and wire. This approach could be an employment opportunity for the community. Hand built, wooden composters can be any size and therefore, customized to their intended use. For example, household composters would be about the same size as the garbage boxes they have currently.

- **Community composters**

- Larger boxes could be built for community gardens. These could be fed by organic waste collected at the two apartment blocks and from businesses and institutions that wish to participate.

- **In-vessel composter**

- Drum composters are available in a broad range of sizes. The Novid composters are built in Manitoba. These have the advantage of being able to take all kinds of organic waste including meat and bones. However, these systems need trained operators. This could be an employment opportunity.

Figure 19: Novid Made-In-Manitoba In-Vessel Composter



4.8.2. **GARDENING**

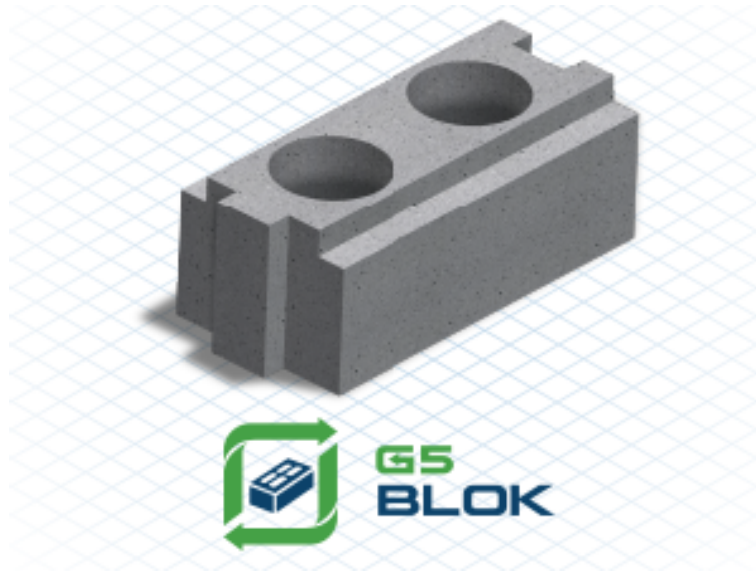
There are some gardens in the community now; we will work to encourage and enable more. For example, there is a garden at the Dakota Oyate Lodge. Some of the 26 residents at the lodge take part in tending the garden. There are also raised beds and a garden behind the Health Office. We will work with CIER on the gardening aspect of their food sovereignty project.

4.9. *Reuse, Repurposing and Reduction*

As of January 1, 2018, China has stopped accepting plastic and other recyclables. Many places are currently stockpiling it. Rather than stockpiling plastic ourselves (or elsewhere), we will consider ways to use this material locally and create revenue and jobs.

We have been in contact with [ReGen Composites](#) investigating turning waste plastic and wood into G5 BLOK building blocks. Processing these blocks ourselves does not appear to be economical at this time. However, we will continue to look for alternative ways to repurpose plastic waste.

Figure 20: ReGen Building Block



4.9.1. WASTE REDUCTION

Diverting recyclables and organics away from the landfill is a good thing to do - but what about taking steps to reduce the sources of waste? After the commencement of the implementation aspect of this project, we will investigate initiatives to reduce waste. Here are some examples to consider:

Working with the diner to replace styrofoam and plastic take-away items with compostable alternatives.

Working to encourage more people to adopt reusable shopping bags instead of plastic.

Consider promoting and making available rechargeable [SodaStream](#) instead of sugary soda or pop in disposable bottles and cans.

4.10. Sorting Station

The Transfer Station location needs to be chosen to meet the requirements outlined in section above, but also to allow for expansion of operation to handle additional materials such as compost, and to allow us to set up sorting facilities.

4.10.1. EQUIPMENT AND FACILITIES

The Sorting Station will need the equipment in the Transfer Station plus the following:

- Belt conveyor

- Blue bag splitting drum
- Glass crusher
- Paper shredder
- Storage containers
- Gaylord containers
- Weigh scale
- Baler

Figure 21: Sorting Conveyor at Pilot Mound Transfer Station (RM Of Louise)



The Sorting Station will have buildings and equipment suitable for separating recyclables. It will need bulk handling equipment such as a skid-steer loader. It will have a conveyor system for moving material along a series of separation bays and chutes.

It is possible to have the conveyor and separation at ground level. The RM of Louise has such a system at their Transfer Station near Pilot Mound. The facility in Altona (RM of Rhineland) has a system where the conveyor is about 3 metres above ground level. In that system, the material is elevated from ground via a conveyor.

In both cases, people are employed to separate selected recyclables from the rest of the recyclable waste stream. Workers stand next to the conveyor and pull special value recyclables off the conveyor. With an elevated system they drop the materials into a chute which drops them into a pile or into a Gaylord box. A Gaylord is a pallet-sized corrugated cardboard box that has a removable lid and is attached to a wooden pallet.

Figure 22: Gaylord



In either case, we will need a baler. The baler can be used for baling commingled recyclables that are left after the sorting process. (The photo is of the baler in Altona)

The baler can also be used for separated material (e.g. corrugated cardboard, aluminum cans) that will be sent to the appropriate Producer Responsibility Organization (PRO).

Figure 23: Baler at Altona Transfer Station



5. REQUIREMENTS

A number of items are required to implement this Plan - including equipment, materials and facilities.

5.1. *Equipment*

5.1.1. **SKID-STEER / COMPACT TRACK LOADER**

A skid-steer loader is a versatile piece of equipment. Most often, these machines have wheels but they can also be fitted with tracks. When fitted with tracks, they are often referred to as Compact Track Loaders. Tracks are advantageous when working in muddy terrain.

A Compact Track Loader will be useful in performing some of the following tasks:

- Move materials within the Waste Management Facility (WMF)
- With a forks attachment, transport pallets and bulk bags containing recyclables
- With an auger attachment, be used to build a perimeter fence and fencing separators in the WMF
- With a bumper hitch, to haul a trailer
- Load the in-vessel composter

Figure 24: Skid-Steer With Bucket, Compact Track With Bucket, Compact Track With Fork Attachment



5.1.2. **ROLL-ON-ROLL-OFF TRAILER & BIN**

Roll-On-Roll-Off Bins are versatile collection and storage bins that can be used as recycling collection bins, as construction waste bins, and as storage bins for recyclables.

Figure 25: Roll-On-Roll-Off Bin with Lid



We will require the following Roll-On-Roll-Off Bins in the following locations:

- **Transfer Station**
 - two 10-yard bins, with covers—one each for:
 - landfill waste
 - commingled recyclables
- **Public Works Yard**
 - Four 5-yard bins, with covers—one each for:
 - scrap metal
 - tires
 - shingles
 - white goods
 - One 10-yard bin for:
 - construction waste

This Plan will also require a trailer to transport the bins.

Figure 26: Roll-On-Roll-Off Trailer



5.1.3. VERTICAL BALER

A small baler can be used to compact small plastics, metal drink cans and (when appropriate) paper and cardboard, into bales. The bales can be stored at the Transfer Station, either for shipment out or for future in-community use, as appropriate. This will likely only be needed after we begin sorting commingled recyclable material.

Figure 27: Vertical Baler



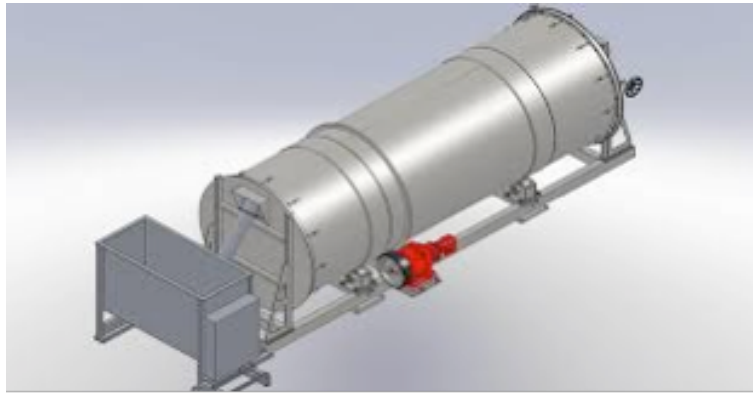
5.1.4. IN-VESSEL COMPOSTER

A number of Manitoba companies manufacture in-vessel composters, and they come in a variety of configurations. This Plan requires one that can be added on to, to accommodate the increasing volume of diverted organics that can be expected as this Plan progresses.

In-vessel composters are standard equipment in the hog industry, and are often found in other commercial animal operations as well. They have a number of advantages over the alternatives:

- Windrow composting is more suitable for larger operations
- Windrow composting is likely to attract animals
- For truly effective windrow composting, a large compost-turner is needed
- In-yard composting can only take pre-consumer vegetable waste
- The composting operations will need to be able to take post-consumer and animal materials
- Unless it is carefully managed, in-yard composting also attracts animals

Figure 28: CAD Drawing Of In-Vessel Composter



5.2. Construction

There will need to be some items built or modified in the community to implement this plan. As much as possible, this work will be done by people from the community and enhance local employment and income.

5.2.1. HOUSEHOLD & COMMUNITY COLLECTION BOXES

In order to ensure proper collection of recyclables and waste, houses need sturdy, permanent recycling and waste boxes outside near the road. Fourplex and duplex units can share a box, as can pairs of houses close together. More isolated houses will need individual boxes. These Household Collection Boxes can be made from purchased wood.

Each household will need to become responsible for separating their recyclables into two different bags, and putting both their waste and their recyclables in their Household Collection Box.

New Collection Bins will be needed for the community Drop-off locations

Figure 29: Typical Household Collection Box



5.2.2. **WOODEN PLATFORMS FOR ROLL-ON-ROLL-OFF CONTAINERS**

The Roll-On-Roll-Off Containers should be placed on a piece of OSB, plywood or other solid surface. Otherwise, they will sink into the gravel or dirt when it rains or the snow melts, clogging up the steel wheels of the trailer that picks them up. These platforms can be as simple as sheets of OSB on used pallets, or as elaborate as a full frame with decking.

5.2.3. **MODIFICATION OF SEA-CONTAINERS**

We plan to move the two sea-containers from the Public Works yard to the Transfer Station location. One of the sea-containers will be used as is for storage of materials for diversion:

- Household Hazardous Waste (HHW)
- Household batteries
- eWaste

The other sea-container will be modified for sheltering staff and providing office space. It will require modifications such as a side door, window, furniture, electricity, and heat. It will also require a composting toilet.

5.3. *Materials*

Materials are consumables that are required for waste and recycling activities. Some can be built in the community, either on site or at Public Works, and some will need to be brought in.

Some consumables (like Community Collection Bins) will last a number of years before they need to be replaced. Others (like Compostable Bags) will need to be replenished regularly.

5.3.1. **BULK BAGS**

Bulk bags will be needed to collect and store the recyclables received within the Transfer Station.

Figure 30: Bulk Bag on a Pallet



These bulk bags can be used for non-toxic recyclables:

- eWaste
- Plastic containers
- Drink cans
- Cardboard
- Paper

Some of what is collected in these Bulk Bags—such as drink cans—can be further compacted using the Vertical Baler. Other items (such as eWaste) will remain stored in these Bulk Bags until they are shipped out.

5.3.2. **SEALABLE BULK CONTAINERS**

Some materials cannot be stored in Bulk Bags, including:

- Household batteries
- Car batteries
- Household Hazardous Waste (HHW)

Figure 31: Sealable Bulk Containers at Brady WMF in Winnipeg, Wrapped For Transport



5.3.3. STRETCH WRAP

Once they are filled with a particular waste, the lids of these Sealable Bulk Containers are sealed with stretch wrap.

Figure 32: Stretch Wrap and Dispenser



5.3.4. COMPOSTABLE BAGS

Once the In-Vessel Composter is operating, community members will be invited to contribute materials to it. These materials will include household compostables and compostables from school food programs.

In most cases, these materials will need to be collected with compostable bags. Care will need to be taken in the sourcing of these bags to ensure that they are, in fact, compostable in an in-vessel composter. These need to be certified to ASTM D6400[13], or an equivalent standard.

Figure 33: ASTM Standard D6400 Compostable Bags



The most active supplier in Manitoba specializing in these bags is [Canada Green Natural Products](#). This company can also supply biodegradable substitutes for styrofoam coffee cups, plastic cutlery & dishes, disposable gloves, and disinfectant wipes.

5.3.5. SAFETY EQUIPMENT

The people working on waste and recycling need appropriate equipment and clothing. This includes:

- Garbage gloves
- Boots
- Safety vests
- Trash Pickers
- Gloves and aprons for handling batteries

Some of these will be last more than a single year; most will need to be purchased each year.

6. BUDGET

This is a rough estimate of costs for implementing this plan. Operating costs include wages & benefits, service contracts, travel, planning, reporting, and operational materials.

6.1. Budget overview:

Table 4: Budget Overview

| | Year | | | |
|-------------------------------------|----------|-----------|-----------|-----------|
| | 1 | 2 | 3 | 4 |
| Cost Category | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
| Professional and technical services | \$33,000 | \$29,000 | \$16,000 | \$13,500 |
| Other personal services | \$0 | \$0 | \$0 | \$0 |
| Meetings | \$2,600 | \$1,900 | \$1,900 | \$1,900 |
| Communications | \$1,140 | \$1,140 | \$1,140 | \$1,140 |
| Training delivery and trainee costs | \$3,660 | \$3,660 | \$3,660 | \$3,660 |
| Work experience initiatives | \$0 | \$0 | \$7,200 | \$7,200 |
| Economic infrastructure | \$0 | \$0 | \$0 | \$0 |
| Salaries and wages | \$20,000 | \$76,000 | \$128,800 | \$128,800 |
| Travel | \$800 | \$800 | \$800 | \$800 |
| Overhead | \$6,790 | \$11,913 | \$16,323 | \$16,183 |
| Equipment and construction | \$0 | \$289,530 | \$44,500 | \$814,500 |
| Minor equipment | \$5,000 | \$8,850 | \$4,850 | \$3,850 |
| Capital (equity) | \$0 | \$0 | \$0 | \$0 |
| Other | \$4,200 | \$2,200 | \$1,300 | \$2,900 |
| Totals | \$77,190 | \$424,993 | \$226,473 | \$994,433 |

6.2. Year 1: Engagement and preparation

In the first year of implementation, we will focus our efforts on the following:

- Legacy and illegal dump site monitoring wells
- Establish communication with PROs
- Community engagement
- Community Drop-off points
- Build 3 wooden bins painted blue

- Household bins
- Build new wooden bins
- Plan, tender, source, and purchase for Year 2 project

Table 5: Year One Budget

| Cost Category | | Budget |
|--|--|-----------------|
| <i>Professional and technical services</i> | | |
| | project lead | \$10,000 |
| | waste site monitoring & remediation | \$10,000 |
| | recycling education | \$8,000 |
| | community engagement | \$2,500 |
| | governance & management | \$2,500 |
| | <i>Professional and technical services subtotal</i> | \$33,000 |
| <i>Meetings</i> | | |
| | 2 community meeting @ \$700/meeting | \$1,400 |
| | 4 community team meetings @ \$300/meeting | \$1,200 |
| | <i>Meetings subtotal</i> | \$2,600 |
| <i>Communications</i> | | |
| | internet: 12 months @ \$50/month | \$600 |
| | phone: 12 months @ \$40/month | \$480 |
| | long distance: 12 months @ \$5/month | \$60 |
| | <i>Communications subtotal</i> | \$1,140 |
| <i>Training delivery and trainee costs</i> | | |
| | 6 trainees for 40 hours each @ \$13/hour | \$3,120 |
| | 6 trainees, 5 lunches each @ \$18/lunch | \$540 |
| | <i>Training delivery and trainee costs subtotal</i> | \$3,660 |
| <i>Salaries and wages</i> | | |
| | 1 crew lead for 1000 hours each @ \$20/hour | \$20,000 |
| | <i>Salaries and wages subtotal</i> | \$20,000 |
| <i>Travel</i> | | |
| | SVDN - Winnipeg: 8 return car trips @ \$100/trip | \$800 |
| | <i>Travel subtotal</i> | \$800 |
| <i>Overhead</i> | | |
| | 5% of equipment expenses | \$250 |
| | 10% of non-equipment expenses | \$6,540 |
| | <i>Overhead subtotal</i> | \$6,790 |
| <i>Minor equipment</i> | | |
| | Household Collection Boxes: 5 boxes @ \$200 each | \$1,000 |
| | Large Community Collection Bins: 3 bins @ \$1000 each | \$3,000 |
| | Boxes of Large Recycling Bags: 10 boxes of large recycling bags @ \$100 each | \$1,000 |
| | <i>Minor equipment subtotal</i> | \$5,000 |
| <i>Other</i> | | |
| | Hotel in Brandon: 6 nights @ \$100/night | \$600 |
| | Food: 6 meals @ \$100/day | \$600 |
| | Materials printing | \$3,000 |
| | <i>Other subtotal</i> | \$4,200 |
| | total: | \$77,190 |

6.3. Year 2

In the second year of implementation, we will focus our efforts on the following:

- **Transfer Station**
 - Develop approach road
 - Install electricity to site
 - Prepare gravel surface
 - Prepare wooden platforms for Roll-On-Roll-Off containers
 - Prepare base for two sea-containers
 - One modified sea-container for office
 - One sea-container for storage
 - Purchase skid-steer with attachments
 - Purchase & install collection containers:
 - 2 10-yard Roll-On-Roll-Off containers for:
 - landfill
 - commingled recycling
 - 3 Bulk Bags on pallets for eWaste
 - 3 Sealable Bulk Containers for:
 - Household batteries
 - Car batteries
 - Household Hazardous Waste
 - Fencing
 - Yard lighting
- **Public Works**
 - Roll-On-Roll-Off containers:
 - Scrap metal - 5-yard
 - Tires - 5-yard
 - Shingles - 5-yard
 - White goods - 5-yard
 - Other construction waste
 - 10-yard
 - Sealable Bulk Containers for car batteries
- Assist CIER food project

Table 6: Year Two Budget

| Cost Category | Budget |
|--|--------|
| <i>Professional and technical services</i> | |

| | | |
|--|--|------------------|
| | project lead | \$7,500 |
| | waste site monitoring & remediation | \$10,000 |
| | recycling education | \$4,000 |
| | community engagement | \$2,500 |
| | governance & management | \$5,000 |
| | <i>Professional and technical services subtotal</i> | <i>\$29,000</i> |
| <i>Meetings</i> | | |
| | 1 community meeting @ \$700/meeting | \$700 |
| | 4 community team meetings @ \$300/meeting | \$1,200 |
| | <i>Meetings subtotal</i> | <i>\$1,900</i> |
| <i>Communications</i> | | |
| | internet: 12 months @ \$50/month | \$600 |
| | phone: 12 months @ \$40/month | \$480 |
| | long distance: 12 months @ \$5/month | \$60 |
| | <i>Communications subtotal</i> | <i>\$1,140</i> |
| <i>Training delivery and trainee costs</i> | | |
| | 6 trainees for 40 hours each @ \$13/hour | \$3,120 |
| | 6 trainees, 5 lunches each @ \$18/lunch | \$540 |
| | <i>Training delivery and trainee costs subtotal</i> | <i>\$3,660</i> |
| <i>Salaries and wages</i> | | |
| | 1 crew lead for 2000 hours each @ \$20/hour | \$40,000 |
| | 1 employees for 2000 hours each @ \$18/lunch | \$36,000 |
| | <i>Salaries and wages subtotal</i> | <i>\$76,000</i> |
| <i>Travel</i> | | |
| | SVDN - Winnipeg: 8 return car trips @ \$100/trip | \$800 |
| | <i>Travel subtotal</i> | <i>\$800</i> |
| <i>Overhead</i> | | |
| | 5% of equipment expenses | \$443 |
| | 10% of non-equipment expenses | \$11,470 |
| | <i>Overhead subtotal</i> | <i>\$11,913</i> |
| <i>Equipment and construction</i> | | |
| | Compact-Track Loader & Attachments | \$34,000 |
| | Roll-On-Roll-Off Trailer & Bins | \$61,530 |
| | Sea-can 20ft Portable Office Combo Unit | \$29,500 |
| | Sea-can 40ft as storage | \$4,500 |
| | Gravel base at WMF | \$50,000 |
| | Approach road repair | \$50,000 |
| | Electrical service extension (500 m) | \$60,000 |
| | <i>Equipment and construction subtotal</i> | <i>\$289,530</i> |
| <i>Minor equipment</i> | | |
| | Household Collection Boxes: 5 boxes @ \$200 each | \$1,000 |
| | Small Community Collection Bins: 2 bins @ \$200 each | \$400 |
| | Large Community Collection Bins: 2 bins @ \$1000 each | \$2,000 |
| | Wood Platforms for Roll-On-Roll-Off Containers: 6 platforms @ \$500 each | \$3,000 |
| | Bulk Bags: 5 bulk bags @ \$50 each | \$250 |
| | Sealable Bulk Containers: 2 sealable bulk containers @ \$100 each | \$200 |
| | Stretch Wrap: 0 stretch wrap @ \$150 each | \$0 |

| | | |
|--------------|--|------------------|
| | Boxes of Large Recycling Bags: 20 boxes of large recycling bags @ \$100 each | \$2,000 |
| | Box of Trash Can Bands: 0 box of trash can bands @ \$50 each | \$0 |
| | Boxes of Compostable Bags: 0 boxes of compostable bags @ \$100 each | \$0 |
| | <i>Minor equipment subtotal</i> | <i>\$8,850</i> |
| <i>Other</i> | | |
| | Hotel in Brandon: 4 nights @ \$100/night | \$600 |
| | Food: 4 meals @ \$100/day | \$600 |
| | Materials printing | \$1,000 |
| | <i>Other subtotal</i> | <i>\$2,200</i> |
| | total: | \$424,993 |

6.4. Year 3

In the third year of implementation, we will focus our efforts on the following:

In-vessel composter

Swap “store” sea-container at Transfer Station

Table 7: Year Three Budget

| Cost Category | | Budget |
|--|---|------------------|
| Professional and technical services | | |
| | project lead | \$5,000 |
| | waste site monitoring & remediation | \$2,000 |
| | recycling education | \$4,000 |
| | community engagement | \$2,500 |
| | governance & management | \$2,500 |
| | <i>Professional and technical services subtotal</i> | <i>\$16,000</i> |
| Meetings | | |
| | 1 community meeting @ \$700/meeting | \$700 |
| | 4 community team meetings @ \$300/meeting | \$1,200 |
| | <i>Meetings subtotal</i> | <i>\$1,900</i> |
| Communications | | |
| | internet: 12 months @ \$50/month | \$600 |
| | phone: 12 months @ \$40/month | \$480 |
| | long distance: 12 months @ \$5/month | \$60 |
| | <i>Communications subtotal</i> | <i>\$1,140</i> |
| Training delivery and trainee costs | | |
| | 6 trainees for 40 hours each @ \$13/hour | \$3,120 |
| | 6 trainees, 5 lunches each @ \$18/lunch | \$540 |
| | <i>Training delivery and trainee costs subtotal</i> | <i>\$3,660</i> |
| Work experience initiatives | | |
| | 2 work experience participants for 240 hours each @ \$15/hour | \$7,200 |
| | <i>Work experience initiatives subtotal</i> | <i>\$7,200</i> |
| Salaries and wages | | |
| | 1 crew lead for 2000 hours each @ \$20/hour | \$40,000 |
| | 1 employee for 2000 hours each @ \$18/lunch | \$36,000 |
| | 2 person-years 1760 hours each @ \$15/hour | \$52,800 |
| | <i>Salaries and wages subtotal</i> | <i>\$128,800</i> |
| Travel | | |
| | SVDN - Winnipeg: 8 return car trips @ \$100/trip | \$800 |
| | <i>Travel subtotal</i> | <i>\$800</i> |

| | | |
|-----------------------------------|--|------------------|
| <i>Overhead</i> | | |
| | 5% of equipment expenses | \$242.50 |
| | 10% of non-equipment expenses | \$16,080 |
| | <i>Overhead subtotal</i> | <i>\$16,323</i> |
| <i>Equipment and construction</i> | | |
| | Sea-can 40ft as storage | \$4,500 |
| | In-Vessel Composter | \$40,000 |
| | <i>Equipment and construction subtotal</i> | <i>\$44,500</i> |
| <i>Minor equipment</i> | | |
| | Household Collection Boxes: 5 boxes @ \$200 each | \$1,000 |
| | Small Community Collection Bins: 2 bins @ \$200 each | \$400 |
| | Large Community Collection Bins: 1 bins @ \$1000 each | \$1,000 |
| | Bulk Bags: 5 bulk bags @ \$50 each | \$250 |
| | Sealable Bulk Containers: 2 sealable bulk containers @ \$100 each | \$200 |
| | Stretch Wrap: 0 stretch wrap @ \$150 each | \$0 |
| | Boxes of Large Recycling Bags: 20 boxes of large recycling bags @ \$100 each | \$2,000 |
| | Box of Trash Can Bands: 0 box of trash can bands @ \$50 each | \$0 |
| | Boxes of Compostable Bags: 0 boxes of compostable bags @ \$100 each | \$0 |
| | Safety Equipment | \$0 |
| | <i>Minor equipment subtotal</i> | <i>\$4,850</i> |
| <i>Other</i> | | |
| | Hotel in Brandon: 4 nights @ \$100/night | \$400 |
| | Food: 4 meals @ \$100/day | \$400 |
| | Materials printing | \$500 |
| | <i>Other subtotal</i> | <i>\$1,300</i> |
| | total: | \$226,473 |

6.5. Year 4

In the fourth year of implementation, we will focus our efforts on the following Sorting Station components:

- Building construction
- Belt conveyor
- Blue bag splitting drum
- Glass crusher
- Paper shredder
- Storage containers
- Gaylord containers
- Weigh scale
- Baler

Table 8: Year Four Budget

| Cost Category | | Budget |
|--|-------------------------------------|---------------|
| <i>Professional and technical services</i> | | |
| | project lead | \$2,500 |
| | waste site monitoring & remediation | \$2,000 |
| | recycling education | \$4,000 |

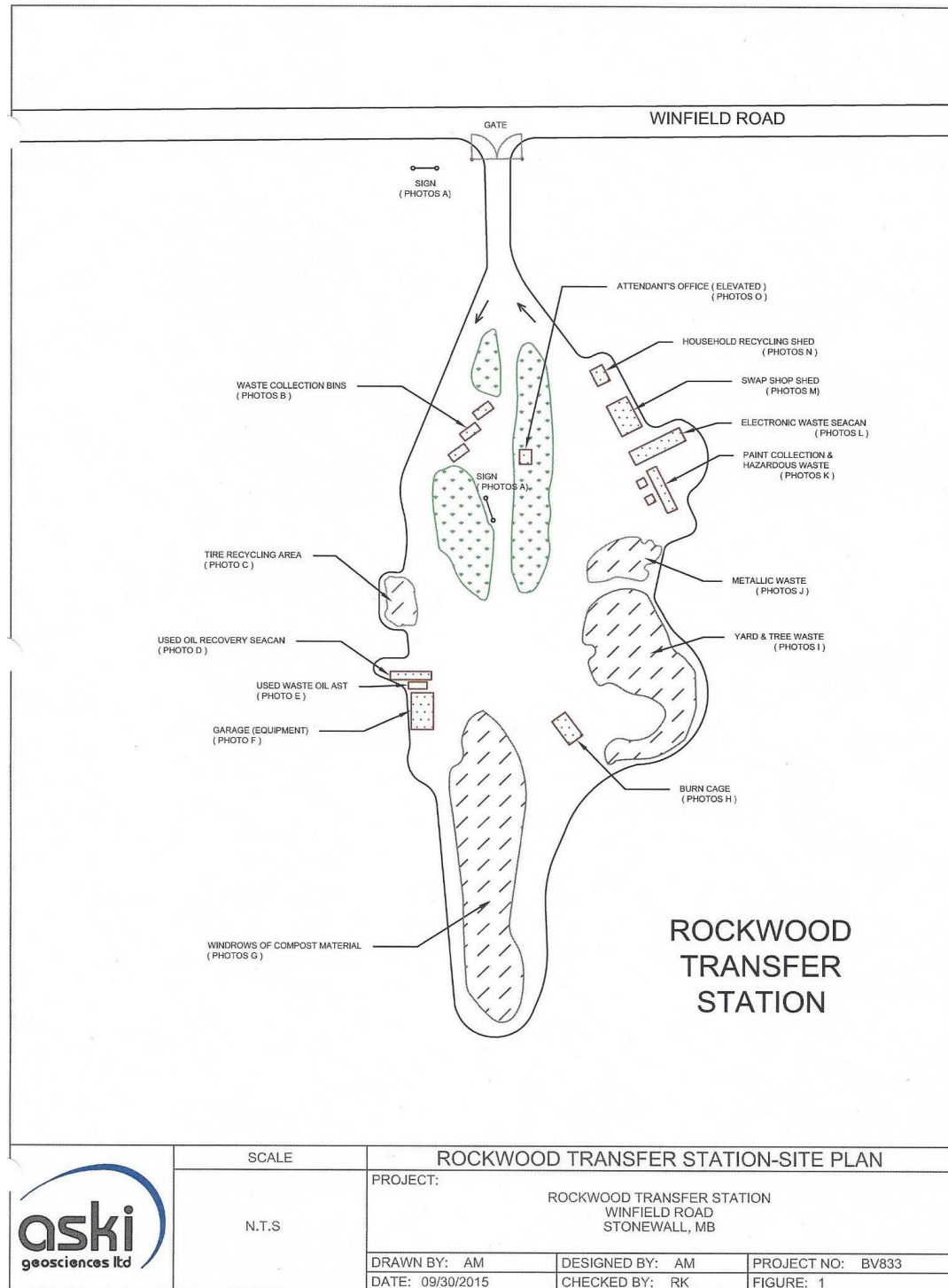
| | | |
|--|---|------------------|
| | community engagement | \$2,500 |
| | governance & management | \$2,500 |
| | <i>Professional and technical services subtotal</i> | <i>\$13,500</i> |
| <i>Meetings</i> | | |
| | 1 community meeting @ \$700/meeting | \$700 |
| | 4 community team meetings @ \$300/meeting | \$1,200 |
| | <i>Meetings subtotal</i> | <i>\$1,900</i> |
| <i>Communications</i> | | |
| | internet: 12 months @ \$50/month | \$600 |
| | phone: 12 months @ \$40/month | \$480 |
| | long distance: 12 months @ \$5/month | \$60 |
| | <i>Communications subtotal</i> | <i>\$1,140</i> |
| <i>Training delivery and trainee costs</i> | | |
| | 6 trainees for 40 hours each @ \$13/hour | \$3,120 |
| | 6 trainees, 5 lunches each @ \$18/lunch | \$540 |
| | <i>Training delivery and trainee costs subtotal</i> | <i>\$3,660</i> |
| <i>Work experience initiatives</i> | | |
| | 2 work experience participants for 240 hours each @ \$15/hour | \$7,200 |
| | <i>Work experience initiatives subtotal</i> | <i>\$7,200</i> |
| <i>Salaries and wages</i> | | |
| | 1 crew lead for 2000 hours each @ \$20/hour | \$40,000 |
| | 1 employees for 2000 hours each @ \$18/lunch | \$36,000 |
| | 2 person-years 1760 hours each @ \$15/hour | \$52,800 |
| | <i>Salaries and wages subtotal</i> | <i>\$128,800</i> |
| <i>Travel</i> | | |
| | SVDN - Winnipeg: 8 return car trips @ \$100/trip | \$800 |
| | <i>Travel subtotal</i> | <i>\$800</i> |
| <i>Overhead</i> | | |
| | 5% of equipment expenses | \$192.50 |
| | 10% of non-equipment expenses | \$15,990 |
| | <i>Overhead subtotal</i> | <i>\$16,183</i> |
| <i>Equipment and construction</i> | | |
| | Sorting building construction and services | \$600,000 |
| | Fit plate package | \$5,500 |
| | Sort conveyor and sort bins | \$26,000 |
| | Transfer conveyor | \$21,000 |
| | Rare earth magnet conveyor | \$19,500 |
| | Auto tie baler | \$85,000 |
| | Control system | \$15,300 |
| | Electrical supplies | \$2,200 |
| | Installation | \$40,000 |
| | <i>Equipment and construction subtotal</i> | <i>\$814,500</i> |
| <i>Minor equipment</i> | | |
| | Household Collection Boxes: 5 boxes @ \$200 each | \$1,000 |
| | Small Community Collection Bins: 2 bins @ \$200 each | \$400 |
| | Large Community Collection Bins: 0 bins @ \$1000 each | \$0 |
| | Bulk Bags: 50 bulk bags @ \$50 each | \$250 |
| | Sealable Bulk Containers: 100 sealable bulk containers @ \$100 each | \$200 |
| | Stretch Wrap: 150 stretch wrap @ \$150 each | \$0 |
| | Boxes of Large Recycling Bags: 100 boxes of large recycling bags @ \$100 each | \$2,000 |
| | Box of Trash Can Bands: 50 box of trash can bands @ \$50 each | \$0 |
| | Boxes of Compostable Bags: 100 boxes of compostable bags @ \$100 each | \$0 |
| | Safety Equipment | \$0 |
| | <i>Minor equipment subtotal</i> | <i>\$3,850</i> |

| | | |
|--------------|--|-------------------------|
| <i>Other</i> | | |
| | Hotel in Brandon: 4 nights @ \$100/night | \$400 |
| | Food: 4 meals @ \$100/day | \$2,000 |
| | Materials printing | \$500 |
| | <i>Other subtotal</i> | <i>\$2,900</i> |
| | <i>total:</i> | <i>\$994,433</i> |

7. APPENDICES

7.1. Rockwood Transfer Station Layout

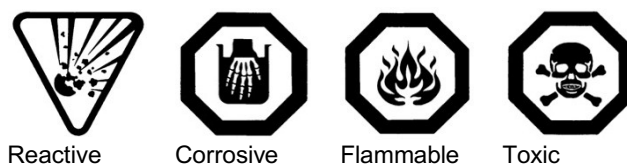
Figure 34: Rockwood Transfer Station



7.2. Household Hazardous Waste (HHW)

People will be encouraged to bring household hazardous waste materials (e.g. paint cans, solvents) to the Transfer Station. A household hazardous product has at least one of the following properties:

Figure 35: HHW Symbols



Some of the items that should be brought to Household Hazardous Waste (HHW) roundups or to the Transfer Station are listed below:

- Abrasive cleansers
- Acetone
- Aerosol paints and sprays
- Air fresheners (aerosol)
- All-purpose cleaners
- Ammonia
- Ant and wasp sprays
- Antifreeze
- Auto body filler
- Barbeque starters
- Bleach
- Brake and transmission fluid
- Butane refills
- Car (lead-acid) batteries
- Car waxes and polishes
- Carbon tetrachloride
- Contact cement
- Degreasers
- Disinfectants
- Drain cleaners
- Fabric softeners
- Floor wax strippers
- Fungicides
- Furniture polishes and waxes

- Glass cleaners
- Glues
- Hair coloring and hair perm solutions
- Hair sprays (aerosol)
- Insecticides
- Kerosene
- Laundry stain removers
- Laundry starch
- Lighter fluid
- Liquid cleansers
- Lye
- Mildew removers
- Muriatic acid
- Nail polish and remover
- Oven cleaners
- Paint thinners and strippers
- Photographic chemicals
- Propane gas cylinders
- Rechargeable Batteries
- Rubbing alcohol
- Rug and upholstery cleaners
- Rust removers
- Septic tank degreaser
- Shoe polish
- Silver and brass polish
- Spa and pool chemicals
- Spot removers
- Toilet cleaners
- Tub and tile cleaners
- Turpentine, varnish, lacquers
- Used oil
- Weed killers
- Windshield washer solution
- Wood preservative

7.3. *Reference Documents*

These are documents that served as resources to the development of this plan and which will continue to be useful as we move into implementation:

Starting a Recycling Program: A Toolkit for Manitoba First Nations and Northern Communities, Indigenous and Northern Affairs Canada / Green Action Centre, 2017, <http://greenactioncentre.ca/live/in-your-community/recycling-toolkit-for-manitoba-first-nations/>

Solid waste management for northern and remote communities, Gatineau, QC : Environment and Climate Change Canada, c2017, <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html>

Standards for Transfer Stations in Manitoba, Manitoba Department of Sustainable Development, https://www.gov.mb.ca/sd/envprograms/swm/pdf/standard_for_transfer_stations.pdf

Design Guidance for Small-Scale Transfer Stations (DRAFT), Indigenous and Northern Affairs Canada, 2017

Technical Guide for Developing a Solid Waste Management Plan (DRAFT), Indigenous and Northern Affairs Canada, 2017

See also attached document:

Waste Management in Northern Canadian Communities – Annotated Bibliography, Prepared by Rachel Hammerback for Boke Consulting, August 2018

7.4. Sources

- [1] Source: Moore Recycling <http://moorescrapmetal.com/roll-off-containers/3257475>
- [2] There are, of course, many electric vehicle options. These three are recommended because they can operate on rough gravel roads, are easily serviced, have good sales support in Canada, and have proven track records.
- [3] Source: <https://ranger.polaris.com/en-ca/ranger-ev/>
- [4] Source: <https://textronoffroad.txtsv.com/side-by-side/electric/prowler-ev>
- [5] Source: <https://www.clubcar.com/us/en/commercial/street-legal-vehicles/carryall-510-lsv.html>
- [6] Source: https://www.amazon.ca/Yutrax-TX158-Warrior-Utility-Trailer/dp/B001O00WQW/ref=sr_1_18?ie=UTF8&qid=1534554200&sr=8-18&keywords=yutrax
- [7] Source: <https://www.abiattachments.com/atv-trailer/workman-xl-dump-trailer/#gallery>
- [8] Source: <http://countryatv.com/7550atv.html>
- [9] Source: <https://harmony1.com/harmony-products/30-inch-baler-m30hd-vertical-baler/>
- [10] Source: <https://lattaequipment.com/product/vertical-baler/>
- [11] Source: <https://www.cram-a-lot.com/vb-balers>
- [12] One of the important benefits of an electric truck is its ability to replace an electric generator which power tools are needed in the field.
- [13] See <https://www.astm.org/Standards/D6400.htm> for details of this standard.
- [14] See <http://www.cagreen.ca>