

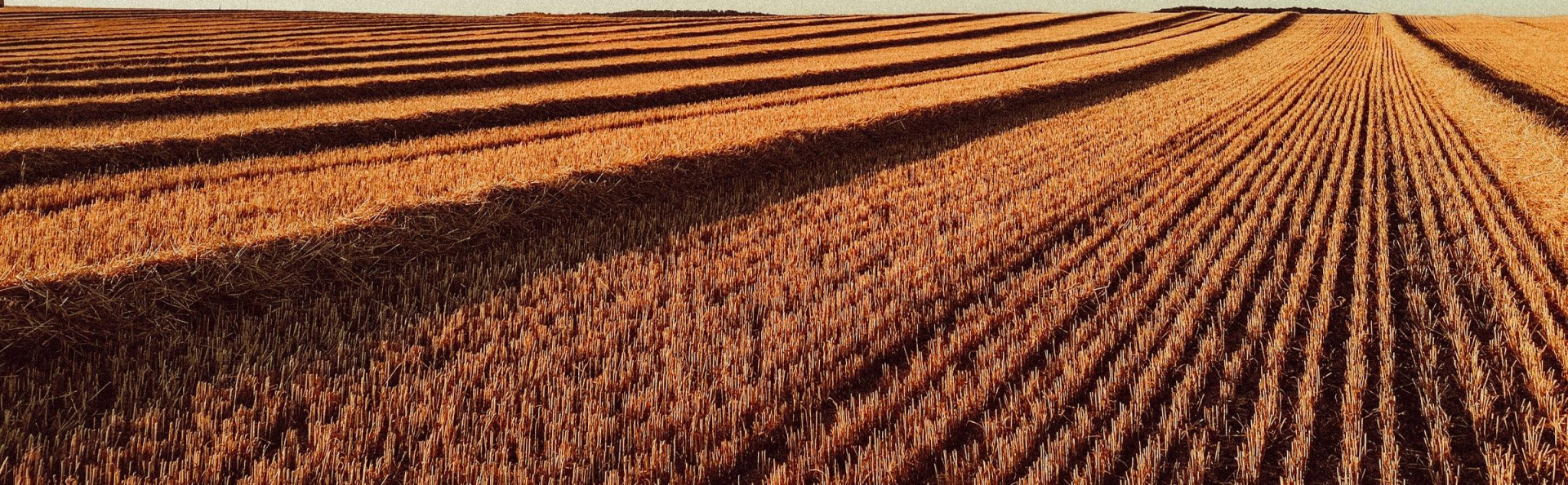


Municipality of Russell Binscarth

Environmental Health Services Review

Confidential Report

June 2022



Notice

This report (the “Report”) by KPMG LLP (“KPMG”) is provided to the Municipality of Russell Binscarth and the Rural Municipality of Riding Mountain West (the “Municipalities”) pursuant to the agreement for professional services between the Municipalities and KPMG dated December 3rd, 2021, to conduct an Environmental Health Services Review (the “Review”).

If this Report is received by anyone other than the Municipalities, the recipient is placed on notice that the attached Report has been prepared solely for the Municipalities for their own internal use and this Report and its contents may not be shared with or disclosed to anyone by the recipient without the express written consent of KPMG and the Municipalities. KPMG does not accept any liability or responsibility to any third party who may use or place reliance on the Report.

The intention of the Report is to provide a current state assessment focused on Environmental Health Services provided by the municipalities, benchmark against comparable municipalities, report on potential efficiency opportunities and to provide analysis on future waste management options.

The procedures we performed do not constitute an audit, examination or review in accordance with standards established by the Chartered Professional Accountants of Canada, and we have not otherwise verified the information we obtained or presented in this Report. We express no opinion or any form of assurance on the information presented in the Report, and make no representations concerning its accuracy or completeness. The Municipalities are responsible for their decisions to implement any opportunities/options and for considering their impact. Implementation will require the Municipalities to plan and test any changes to ensure that the Municipalities will realize satisfactory results.

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Executive Summary

Executive Summary

The Province of Manitoba (the “Province” or “Manitoba”) engaged KPMG LLP (“KPMG”) to conduct an independent Service Delivery Review as part of its Municipal Service Delivery Improvement Program (MSDIP). The program provides municipalities and planning districts with financial support to complete value-for-money service delivery reviews of programs and services. The goal of these reviews is to help municipalities and planning districts improve service delivery without raising taxes or reducing front line services.

In this particular review, the Municipality of Russell Binscarth (“MRB” or “Russell Binscarth”) and the Rural Municipality of Riding Mountain West (RMW) (together, the “Municipalities”) have worked with KPMG to perform a review of Environmental Health Services with a lens of effectiveness, efficiency and economy of dollars spent on services or programs. Though funded by the Province, this report will belong to the municipalities and be posted publicly and submitted to the Minister of Municipal Relations.

The Review was not an audit, and focused on identifying opportunities for the City’s consideration based on comparisons with practices and benchmarks from other municipalities, the experience of the KPMG team, and input from stakeholders primarily with the Municipalities. The Review followed a collaborative process between the Municipalities and KPMG, and was undertaken between February 2022 and April 2022.

Context

In terms of population growth, MRB has had higher growth than Manitoba and Canada since 2016, and RMW has had less. Between 2016 and 2021, Russell Binscarth grew 6.3% and Riding Mountain West, 1.5%, compared to 5.0% and 5.2% for Manitoba and Canada, respectively.

Executive Summary

Environmental Health Services at Russell Binscarth

The Municipality of Russell Binscarth provides waste and recycling collection services and operates the Municipality's Russell Landfill and Binscarth Transfer Station. It does this in service of its residents as well as those of a portion of the RM of Riding Mountain West (i.e., the pre-amalgamation RM of Silver Creek).

Russell Binscarth provides multiple opportunities for waste diversion to the public in cooperation with Multi-Material Stewardship Manitoba.

Approach

In this review, KPMG took the approach of an operational review to examine the current state of both municipalities in terms of the scope of their operations, staffing, financial analysis, regulatory and funding environments, and population growth.

Selected Option for Future Operating Model

It was key to Russell Binscarth that the analysis would indicate a preferred direction for its future waste and recycling model, this report suggests that on a cost basis, that it move toward **Option 2: Export all waste.**

Environmental Health Services in Riding Mountain West

The Rural Municipality of Riding Mountain West provides waste and recycling collection services for its urban areas and operates the Inglis Landfill. Residents in or near Silverton and Angusville (i.e., the pre-amalgamation RM of Silver Creek) are served by Russell Binscarth.

Riding Mountain West provides recycling through contracted services and receives funds Multi-Material Stewardship Manitoba for its participation.

Executive Summary – Summary of Options

Option 2: Export all waste

Implementing Option 2: “Export all waste” rather than the Current State model (Option 1), could result in a cost improvement in the order of \$56,000 per year compared to the Current State option. Exporting waste is expected to slow the growth of program costs, with a result that cost savings will also grow to approximately \$111,000 in 2032 – i.e., in 10 years, exporting waste is expected to cost approximately \$111,000 less than the current state model.

Option 3: Pyrolysis

Comparing Option 3a: “Pyrolysis with electricity sales” to the Current State model (Option 1) on a cost basis alone, pyrolysis is expected to increase waste program costs to MRB by approximately \$100,000 per year in 2023 (i.e., compared to the current state). Looking 10 years into the future, pyrolysis could result in waste program savings of approximately \$99,000 per year. This swing to cost savings is based on the assumed annual increases to carbon credit pricing, mirroring the schedule issued by the Canadian government. Operating savings from the pyrolysis plant will be dependent on federal tax credits.

Option 3b, “Pyrolysis with Bitcoin mining,” is discussed further as RMW is interested in pursuing this, but decision-makers should develop an understanding of the associated risks prior to pursuing this path.

On a related note, the pyrolysis plant is expected to generate electricity and heat as process outputs. These energies can be directed to support large public buildings. There is an option to use the electricity generated to operate a Bitcoin mining rig. Such a path would make the pyrolysis the lowest cost option of those considered.




Assumptions:

1. Annual inflation of 2% (does not account for current inflationary pressures).
2. Continued population growth of 5% (in the next five years) mirroring that of the last 5 years, with accompanying linear increases in expenses and revenues.
3. Third-party collection costs are unaffected by travel distance (where most waste is diverted to pyrolysis located in RMW and the rest is diverted to Dauphin, for example). In reality, it could be expected that collection costs could be lower due to reduced travel distances.
4. The pyrolysis plant will run at full-capacity in its pilot year, based on projected waste volumes from MRB and RMW. Preparations could include staffing, site planning, and waste overflow planning.
5. Greenhouse Gas credit values increase annually from \$65 in 2023 to \$170 in 2032 (see Appendix A – GHG Credit Projections). Assuming that GHG credits continue to escalate according to the plan set out, the pyrolysis plant may break even with the next best option, exporting waste, in approximately ten years.
6. Bitcoin assumed to have an average value of \$40,000 CAD in both 2023 and 2032.

Options Analysis - Summary


Summary of Options – Evaluation & Considerations

Decision-makers should be aware of the following qualitative considerations in concert with the financial considerations.

		Option 1: Current State	Option 2: Export all Waste	Option 3: Pyrolysis
Tax-Supported Program Cost	Net Cost 2023	\$345,000	\$289,000	Range: \$372,000 to \$445,000
	Net Cost 2032	\$680,000	\$569,000	Range: \$533,000 to \$581,000
	+/- from Current State 2023	n/a	+\$56,000	Range: -\$100,000 to -\$27,000
	+/- from Current State 2032	n/a	+\$111,000	Range: +\$99,000 to +\$147,000
Environmental Considerations 	Opting out of using a pyrolysis system would cause MRB's GHG emissions to remain relatively unchanged . Exporting all waste could lead to higher emissions, due to longer travel distances to landfill disposal.		GHG emissions would be reduced , through shorter waste disposal travel distances and reduced landfill input. It is estimated that MRB would save ~2.5 CO2 eq. tonnes per tonne of waste diverted from landfills to pyrolysis.	
Administrative Considerations 	Continuing with the current state of waste management would avoid effort required by a transition .	Exporting all waste would reducing municipal staffing requirements (removing full time landfill operations).	MRB will need to enter into contractual agreements with Riding Mountain West (and possibly the province) in order to determine revenue, expense, and ownership sharing of a pyrolysis plant.	
Operating Considerations 	Continuing to expand the Russell Landfill will require ongoing costs and administration.	The vendor will be able to accommodate growth in waste volumes as the Municipality's population grows.	The pilot-scale pyrolysis system may not be able to absorb all of RMW & MRB's waste in the near-future . As MRB's population continues to grow, MRB may need to pursue a hybrid waste model – i.e., where most waste is directed to the pyrolysis plant and some is diverted to Dauphin.	
Russell Binscarth will likely want to continue to cooperate with RMW in recycling operations.				

Summary of Options – Evaluation & Considerations

Decision-makers should be aware of the following qualitative considerations in concert with the financial considerations.

<p>Impacts on Risk </p>	Option 1: Current State	Option 2: Export all Waste	Option 3: Pyrolysis
	<ul style="list-style-type: none"> – Continuing to construct landfill cells may increase costs associated with potential future environmental remediation – Choosing to continue with the current state option may cause the MRB to miss an opportunity to secure provincial funding to support a transition to pyrolysis. 	<ul style="list-style-type: none"> – MRB will be increasingly reliant on external parties to conduct waste management services. MRB will be subject to changes in vendor operating costs. – Need to assess the ability of third party to absorb future increase in waste volume. 	<ul style="list-style-type: none"> – The pyrolysis system is fairly novel, particularly in North America. With the implementation of such technology, there is a risk of failure and/or unexpected system performance issues. – As the pyrolysis system reaches intake capacity and the Municipality needs to divert waste to other locations, third-party collection contracts may have unforeseen costs. – While Bitcoin mining presents an exciting opportunity to the municipalities in how to use the surplus electric power, there are numerous risks (market risks, operating risks, and others) that may affect its profitability. – The value of carbon credits may be subject to political change.



Introduction

Introduction

Objective & Scope

Objective

The objective of the Municipality of Russell Binscarth (“MRB” or “Russell Binscarth”) and the Rural Municipality of Riding Mountain West (“RMW” or “Riding Mountain West”) (together, “the Municipalities”) was to conduct an operational review (the “Review”) of environmental health services provided by the Municipalities and the infrastructure associated with those services. As a smaller municipality, RMW relies on MRB for waste and recycling collection to serve a portion of its municipality and also has a handshake agreement to share in operating costs of the Russell Landfill.

Both municipalities are faced with pending decisions around how each will deal with waste collection and disposal and are looking for an options analysis to inform those decisions. Riding Mountain West has committed itself to pursuing a waste reduction technology called pyrolysis and is currently in discussions with a vendor and the Province of Manitoba around a potential pilot project to implement such technology. Russell Binscarth has an opportunity to consider joining RMW’s potential pyrolysis project, to continue to extend its outsourcing of waste collection, or is faced with continuing to expand its existing landfill sites to meet its waste disposal needs.

The options identified during this Review are to be evaluated through the lens of program cost, environmental impact, administrative changes required, risk, and operations planning considerations.

Scope

This project was a review of environmental health services, often called “waste management,” including waste collection and disposal, as well as waste diversion programs.

The Review included an assessment of the current state of the two municipalities. Specifically, this included review of financial, organizational, and operational information, benchmarking against comparable municipalities, identification of potential opportunities for efficiencies, and an analysis of options for future solid waste management program improvements.

Stakeholder Involvement

Key stakeholders helped to assess the current state and identify opportunities for improvement. The Review recognizes and appreciates the importance of their collective input. Stakeholders included the Chief Administrative Officers (CAO) of each municipality as well as the Chief Financial Officers (CFO), other senior leaders and those knowledgeable of the waste management functions.

Introduction

Approach and Timeline

KPMG worked collaboratively with the Municipalities to assess the service offerings, challenges and opportunities of the waste management business units and the broader organization. The approach employed the following phases:

- 1) Initial Data Gathering and Analysis – KPMG did an initial review of documentation and conducted preliminary interviews with senior leaders within the organization.
- 2) Review of Environmental Health Services – KPMG conducted interviews and working sessions with key individuals familiar with waste management and recycling activities in the two municipalities. Analysis on the data and information provided in the initial data gathering exercise was validated with the leaders involved. This validation process reviewed the Municipalities’ operating approaches and context, level of effort and FTEs, and challenges. The baseline information was compared with select peer municipalities, where available. Using both internal and external information, opportunities were identified.
- 3) Options Analysis – The potential impact of the identified opportunities was done based on performance evaluation criteria that were discussed with the Municipalities. These criteria include both qualitative and quantitative components. The criteria were:
 - a) **Tax-supported Program Cost** – Will improvement opportunities generate a potential cost improvement? Are there revenue or reinvestment opportunities?
 - b) **Environmental Considerations** – What are the impacts of opportunities to local land and water. Consider impacts to greenhouse gas emissions.
 - c) **Administrative Considerations** – How do the opportunities under consideration interplay with existing administrative capabilities, capacity and skills? To what degree are the municipalities prepared to undergo changes in their operations?
 - d) **Risk** – What are the impacts of potential opportunities on current or future risk levels?
 - e) **Operating Considerations** – What is the relative effort and timeline to transition affected programs?
- 4) Reporting – KPMG developed a draft report for the Municipalities’ review. The finalized report addressed feedback and minor adjustments.

February 2022

March 2022

March
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April 2022

April 2022

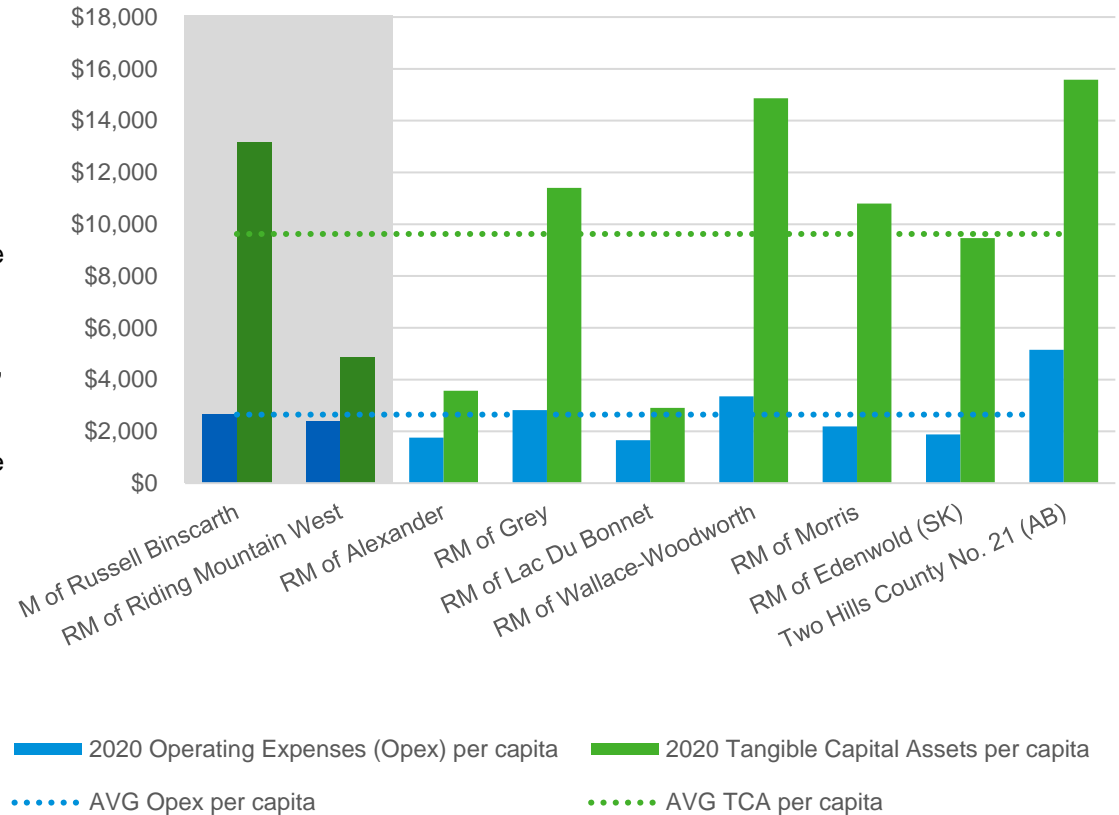
Introduction

Municipal Comparator's Overview

On a macro level, the Municipalities should consider how their services perform relative to similarly sized municipalities. Analysis of per capita spending reveals the following:

- There seems to be two categories of municipalities: 1) those who have built out their own infrastructure and, 2) those who have developed and relied upon resource-sharing arrangements with neighbouring municipalities. The latter category benefits from below average operating expenses by operating less infrastructure.
- Among those with more intensive infrastructure, Russell Binscarth is in the middle of the pack. Even though MRB has a larger scale of infrastructure, it's operating budget is very close to the average of the selected peers.
- Riding Mountain West has a smaller scale of municipally-owned infrastructure, as evidenced by it having under \$5,000 of tangible capital assets per capita. At a municipal level, these also means that it's operating budget of under \$2,400 is smaller than the average of the selected municipalities, which is approximately \$2,650 per capita.
- **Bottomline, both Municipalities operate efficiently compared to the selected peers.**

Per capita Operating Expenses and TCA (2020)



*RMW values are currently sourced from RMW's 2020 financial plan and 2018 financial statement (2019 actuals: operating expenses and revenues. 2018 actuals: landfill liabilities, debt and assets.)

Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada and Municipal Annual Reports. Data may not be strictly comparable due to accounting and reporting differences.



Municipal Context

Municipal Context

Strengths and Challenges in Providing Services

Overview

A variety of common strengths and challenges are apparent in the environmental health services provided by the Russell Binscarth and Riding Mountain West. Many of these strengths and challenges exist as a result of the relatively small service populations within the municipalities and the correspondingly sized workforces and operational budgets. Common strengths and challenges of the environment services provided by the municipalities are outlined below.



Strengths

- Municipal leaders have established relationships with neighbouring municipalities and have developed cooperative arrangements for resource and infrastructure-sharing.
- The municipalities are agile in adjusting service delivery methods. Both Russell Binscarth and Riding Mountain West are beginning to use external vendors for smaller-scale service offerings like waste collection. Russell Binscarth recently transitioned from urban waste collection conducted by the municipality in February 2022. Both municipalities use external vendors for recycling collection and disposal.
- Similarly, the municipalities are able to pivot in their use of local landfills toward Waste for Energy technologies or exporting their waste to larger-scale operations. Specifically, Russell Binscarth is currently considering the addition of a new cell in their Russell landfill, while also considering participation in a pyrolysis pilot project initiated by RMW.



Challenges

- Outside of contracted collection, the municipalities are not able to track average waste volumes over time. The cost of a weight scale is too large relative to the municipalities yearly budgets.
- The municipalities cannot consistently produce sufficient waste volumes for certain recycling programs. For example, Clean Farms requires a minimum volume of select materials in order to provide collection services.
- The flexibility that allows the municipalities to pivot can become a limiting constraint when considering financing new technology trials.

Municipal Context

Context

Environmental Health Services, or waste services, are governed by provincial and municipal regulations and policies.

Waste Management in Manitoba

In Manitoba, waste management oversight is the responsibility of the Ministry of Environment, Climate and Parks. It administers the Waste Management Facilities Regulation, which is part of The Environment Act. The Ministry oversees permitting and licensing, inspection and monitoring of all solid waste management facilities, including:

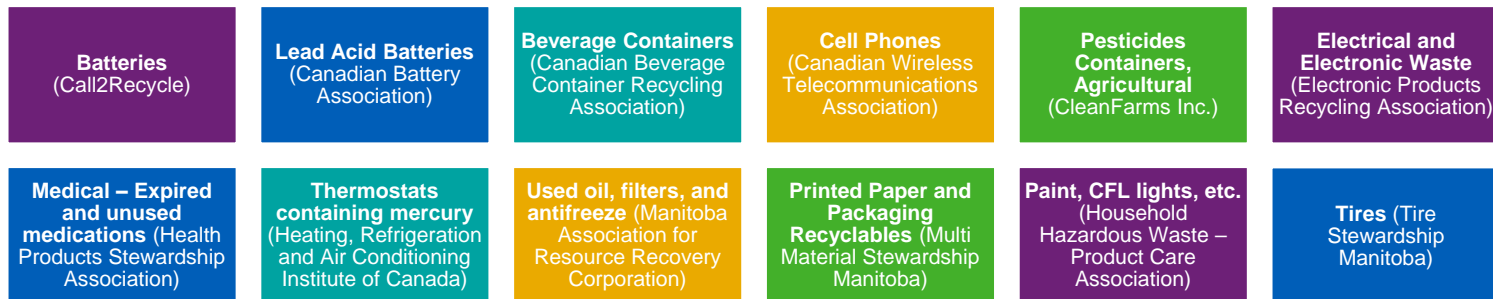
- Landfills, transfer stations and composting facilities
- Material recovery facilities; and
- Remote seasonal waste facilities

Whereas the province functions in an oversight role, municipalities have complete responsibility of all operational and capital costs, including those due to changing regulations driven by the province.

Environmental Stewardship – Sustainable and Green Initiatives

The Environmental Stewardship branch is responsible for strategic planning support for the development of policy, legislation, and program alternatives for departmental and governmental priorities as well as sustainable and green initiatives. The Branch provides a leadership role in the development of policy, legislation and planning. It also provides facilitation and coordination support to other branches, and promotes consensus-building and consistency with governmental and departmental visions, goals and objectives. The Branch oversees 12 Industry Stewardship Programs aligning to Producer Responsibility Organizations (PRO).

While municipal leaders are supportive of environmental strategies, the net result to municipalities is that recycling programs continue to grow in cost and complexity. Smaller municipalities are under-resourced in their capacity to maintain increasing program administration requirements. Even if a municipality outsources waste and recycling collection and disposal, they are not able to outsource these programs.



Source: Province of Manitoba, Ministry Environment, Climate & Parks.

Municipal Context

Provincial Recycling & Diversion Programs

Provincial waste and recycling programs factor into the overall cost structure of services to Manitoba municipalities. In short, MRB and RMW recycling and waste diversion efforts are subsidized by current provincial funding programs.

Program	Description	Services Provided to Municipalities	Recycling Volumes
Multi-Material Stewardship Manitoba (Residential)	<p>Multi-Material Stewardship Manitoba Inc. (MMSM) is a not-for-profit, industry-funded organization that funds and provides support for the Manitoba's residential recycling programs for packaging and printed paper.</p> <p>MMSM works on behalf of the manufacturers, retailers and other organizations that supply packaging and printed paper to Manitobans. These businesses pay fees on the materials to MMSM, which are then used to reimburse municipalities for up to 80% of the net cost of their residential recycling system.</p>	The Municipalities have access to MMSM marketing materials, program and technical supports, and receive funding from MMSM based on the total weight of recyclable materials collected.	<p>Municipality of Russell Binscarth</p> <p>MRB reported collecting approximately 140.3 tonnes of recycling in 2020, or approximately 57.5 kg per person. MRB receives, on average, approximately \$40,000 per year for the recyclables it collects.</p> <p>RM of Riding Mountain West</p> <p>RMW reported collecting approximately 15.8 tonnes of recycling in 2021, or approximately 11.1 kg per person.</p>
Waste Reduction & Recycling Support (WRARS)	<p>The Waste Reduction and Recycling Support (WRARS) Program was established by the province to encourage municipal waste diversion activities. The province subjects all solid waste disposed at Manitoba landfills to a \$10 per tonne levy. The levy applies to all residential, industrial, commercial and institutional waste, construction, renovation and demolition waste and other solid waste materials.</p> <p>Municipalities apply for a rebate based on the amount of recycling tonnage reported to MMSM in designated categories in the Packaging and Printed Paper Regulation of the WRAP Act.</p> <p>The WRARS Levy functions as a disincentive to waste disposal by increasing waste disposal costs. The program conversely rewards municipal recycling efforts.</p>	Not applicable.	<p>Municipality of Russell Binscarth</p> <p>MRB reported payments of nearly \$16,000 in 2021 and received approximately \$14,000 in revenue back from the program.</p> <p>RM of Riding Mountain West</p> <p>RMW reported payment of approximately \$6,500 in 2021. It's unknown whether it received any revenue back from the program.</p>

Source: Province of Manitoba, Ministry Environment, Climate and Parks.



Current State Review






Current State Review

Russell Binscarth

Overview of Services

The Municipality of Russell Binscarth provides waste collection and disposal services to its residents as well as recycling services through a third-party vendor. Services are managed with a cost-minimization strategy and are described below.

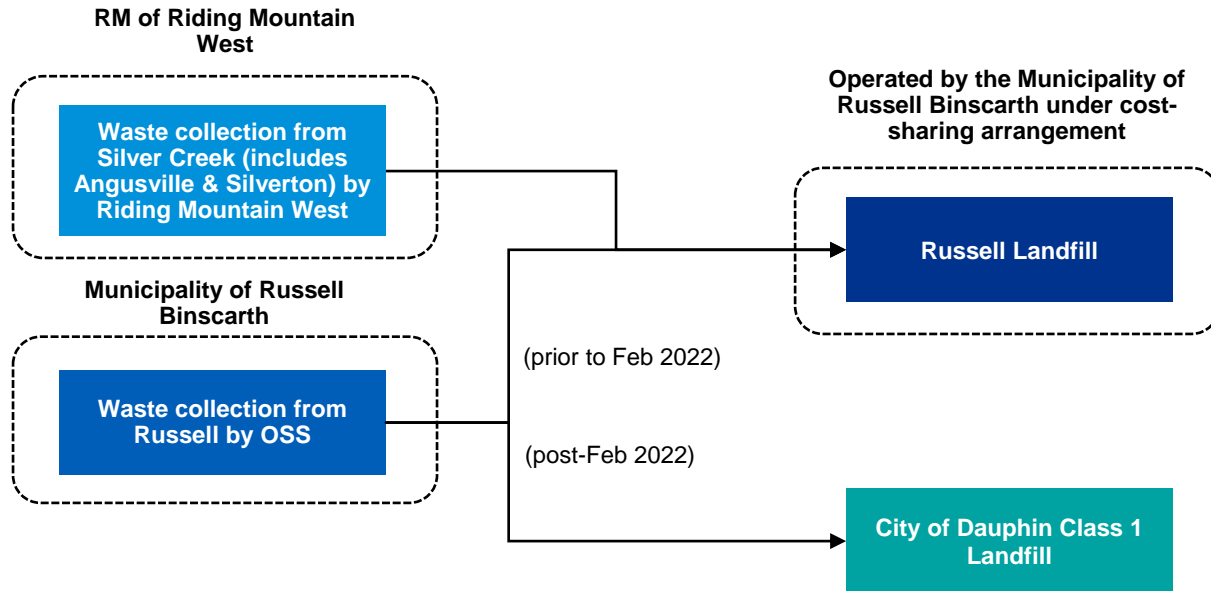
Area of Service	Urban	Rural
<p>Waste Collection</p> 	<p>Traditionally, Russell Binscarth has collected its own residential urban waste, though it transitioned in February 2022 to outsourced collection through Ottenbreit Sanitation Services (OSS) located in the City of Dauphin to conduct urban residential waste collection.</p> <p>Russell Binscarth continues to maintain the Russell Landfill as a backup contingency should it need to move away from <u>outsourcing through OSS</u>. It also provides MRB with flexibility in considering the pyrolysis option currently under consideration. Each waste cell provides approximately 10 months of waste disposal capacity for the Municipality.</p>	<p>Rural residents of the Municipality drop off their waste at one of two transfer stations owned and operated by the Municipality. These are located at the sites formerly used for landfills in the towns of Russell and Binscarth.</p>
<p>Waste Disposal</p> 	<p>Historically, the Municipality has operated landfills near both Russell and Binscarth. When the capacity of the last waste cell at the Binscarth Landfill was consumed, the site was converted into a transfer station. There still remains room for additional landfill pits and each would provide an additional year and a half of capacity for the Municipality.</p> <p>The Municipality’s contract with OSS stipulates that the Municipality can choose an alternative disposal site for their urban waste. With the arrangement of outsourced waste collection by OSS, waste is now disposed of at the City of Dauphin’s class 1 landfill.</p> <p>The Russell Landfill continues to be used for commercial and industrial waste.</p>	<p>Rural residential waste disposed of at the Binscarth Landfill is collected by OSS for transfer and disposal in Dauphin. The Binscarth Landfill is currently at full capacity and is now used as a transfer site.</p>
<p>Diversion & Recycling</p> 	<p>Similar to waste collection, the Municipality has a contract with OSS to conduct urban residential recycling collection. OSS began urban recycling collection for the Municipality in 2014. OSS delivers all residential recycling to its sorting facility in Yorkton, SK.</p> <p>The Municipality collects used metals and oils at the Russell Landfill and receives some revenues for these materials from Multi-Material Stewardship Manitoba (MMSM).</p>	<p>Rural residential recycling collection takes place at both the Russell Landfill and Binscarth Transfer Station.</p>

Source: Derived from information provided by the Municipality of Russell Binscarth.

Waste Collection & Shared Disposal Operations

The shared use arrangement with respect to the Russell Landfill is a product of the relationship of the municipalities prior to the provincial initiative which saw many smaller Manitoba municipalities amalgamate as of January 1, 2015. Prior to the amalgamation, waste from the Rural Municipality of Silver Creek (now part of the RM of Riding Mountain West) was disposed of at the Russell Landfill. This handshake agreement (i.e., no formal documents exist to define and govern the arrangement) carried over after the amalgamation with a result that the RM of Riding Mountain West has 18.2% ownership and responsibility for operations at the Russell Landfill. Russell Binscarth operates and manages the Russell Landfill and submits invoices to Riding Mountain West.

Waste Flows & Ownership of Residential Waste Operations

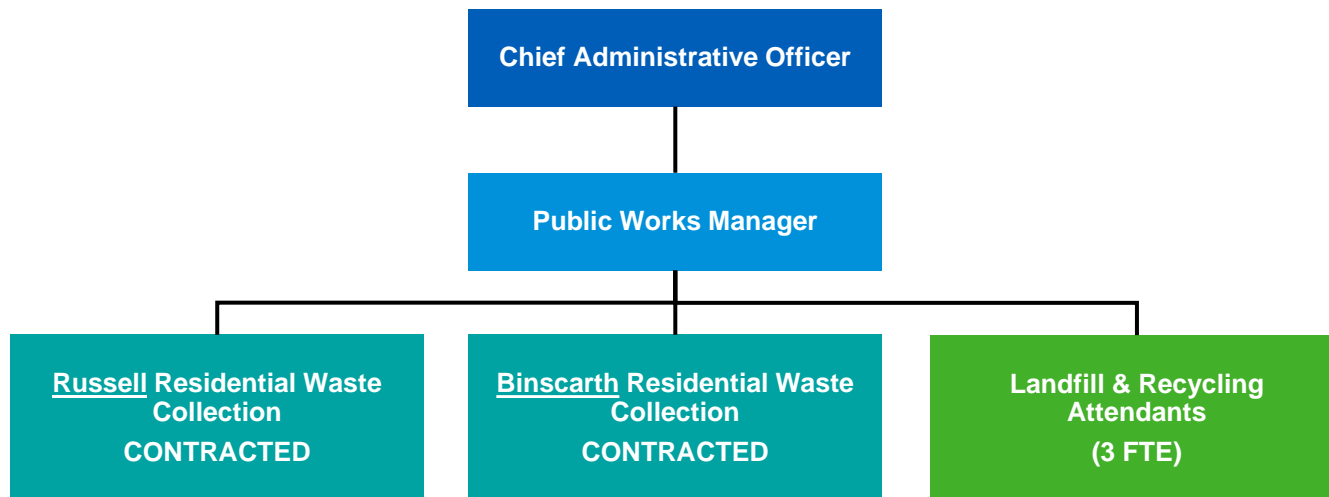


Source: Derived from information provided by the Municipality of Russell Binscarth.

Organizational Structure

The organizational structure of environmental health services in the Municipality of Russell Binscarth is comprised of approximately 3 FTEs. The Municipality has recently outsourced the collection of waste in urban areas, resulting in the CAO assuming sole oversight of the department of waste collection in the Municipality.

As noted earlier, with respect to waste disposal for Riding Mountain West, RMW performs waste collection operations for the region of Silver Creek and disposes of it at the Russell Landfill, which is operated by Russell Binscarth.



Source: Derived from information provided by the Municipality of Russell Binscarth.

Financial Overview of Environmental Health Services

Russell Binscarth tracks revenue and expenses against the categories of activities involved in the delivery of services, including: collection, disposal (for both the Russell Landfill and Binscarth Transfer Station). Some recent history that explains notable changes in spending and earning patterns include the following:

- Upon reaching the capacity of the Binscarth Landfill in 2019, the landfill was converted into a transfer station for rural waste.
- Revenue for waste services is primarily received as a component of residential property taxes and for commercial and industrial waste, a waste levy.
- More than one-half of waste disposal revenues captured in MRB statements are reflective of specific types of wastes collected and sold (e.g., electronic waste, scrap metal, and used oil, etc.). Waste disposal revenue varies widely based on the types of waste disposed of in the current year.
- The Municipality has plans in 2022 to expand the Russell Landfill to add capacity. Engineering consulting is expected to cost in the order of \$50,000, in addition to the cost to build, which is planned to be performed in-house. In support of this expansion, MRB has budgeted an additional \$23,000 in heavy equipment repairs and \$20,000 for contracted services.
- The 18.2% portion of costs allocated to RMW is based on the Russell Landfill net cost of service.

Waste Services Financial Summary					
(\$)	2018	2019	2020	2021	2022 Budget
Waste Collection					
Revenue	–	–	–	–	–
Expenses	47,832	60,783	61,711	64,207	155,000
Net Cost of Service	-47,832	-60,783	-61,711	-64,207	-155,000
Waste Disposal – Russell & Binscarth					
Revenue	61,179	14,432	11,612	51,345	27,450
Expenses	111,000	128,714	113,265	135,595	190,000
Net Cost of Service	-49,821	-114,282	-101,653	-84,250	-162,550
Diversion & Recycling					
Revenue	57,040	50,154	53,464	53,651	52,250
Expenses	137,389	163,227	163,946	170,325	175,500
Net Cost of Service	-80,349	-113,073	-110,482	-116,674	-123,250
Municipal Wells					
Revenue	–	–	–	–	–
Expenses	1,943	4,285	2,395	2,766	4,500
Net Cost of Service	-1,943	-4,285	-2,395	-2,766	-4,500
Total Tax-Supported Cost of Service	-179,945	-292,423	-276,241	-267,897	-445,300

Source: Financial information is derived from municipal financial statements.

Expenses

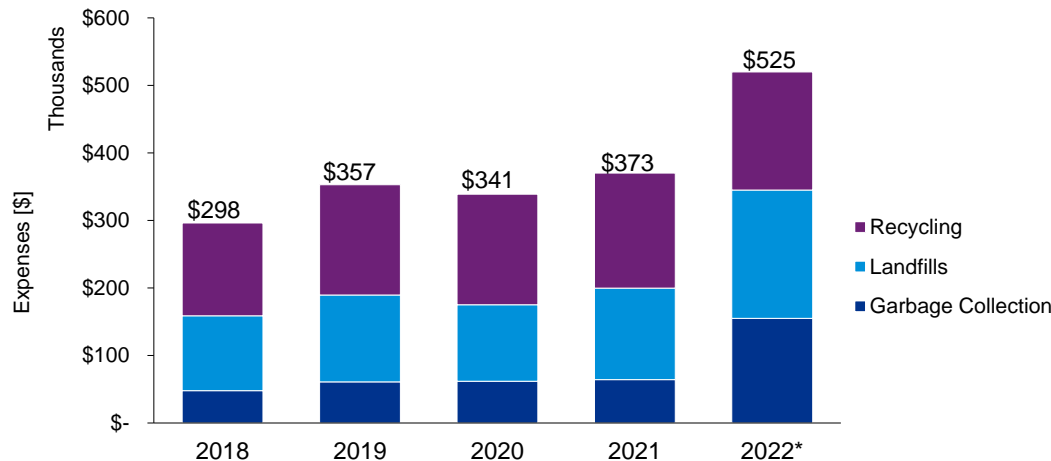
The cost of waste services at the Municipality of Russell Binscarth increased by approximately 25% from 2018 to 2021. Garbage collection expenses increasing by 34%, landfill expenses increased by 22% and recycling expenses increased by 24%. These increases resulted in environmental health services expenses totalling over \$370,000 in 2021.

Nearly one-half of environmental health services expenses for the Municipality of Russell Binscarth are directed towards recycling. In 2021, recycling accounted for 46% of total spending, with landfill operations and garbage collection making up approximately 37% and 17%, respectively, of the total cost of waste services.

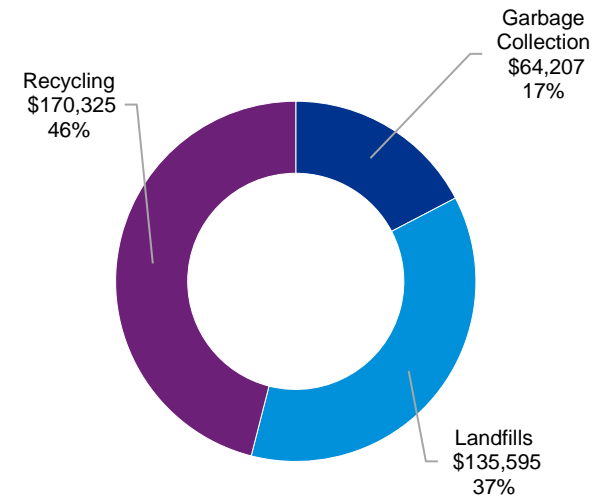
Contracted services make up nearly 100% of recycling program costs during the period under consideration.

Total Expenses per Capita	
2018	\$119.1
2019	\$140.8
2020	\$133.0
2021	\$143.6
2022*	\$199.7

Environmental Health Services Expenses, 2018-2022



2021 Expenses



Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada.

*2022 financials are budgeted figures.

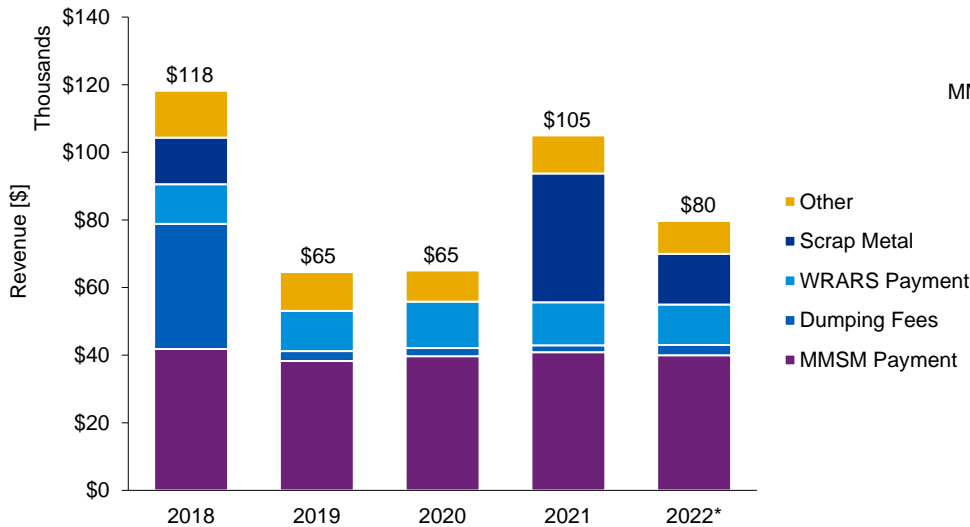
Revenue

Total revenue for environmental health services for the Municipality of Russell Binscarth decreased by approximately 11% from 2018 to 2021, resulting in total revenues of over \$105,000 in 2021. This decrease can be primarily attributed to an decrease in dumping fees, which brought in over \$37,000 in 2018. In 2018, construction projects in the region were the cause of a large dumping fee total. The amount of waste and thus, revenue, from sources like dumping fees, scrap metal, used oil and tires, is relatively unpredictable and should not be counted on as a source of revenue.

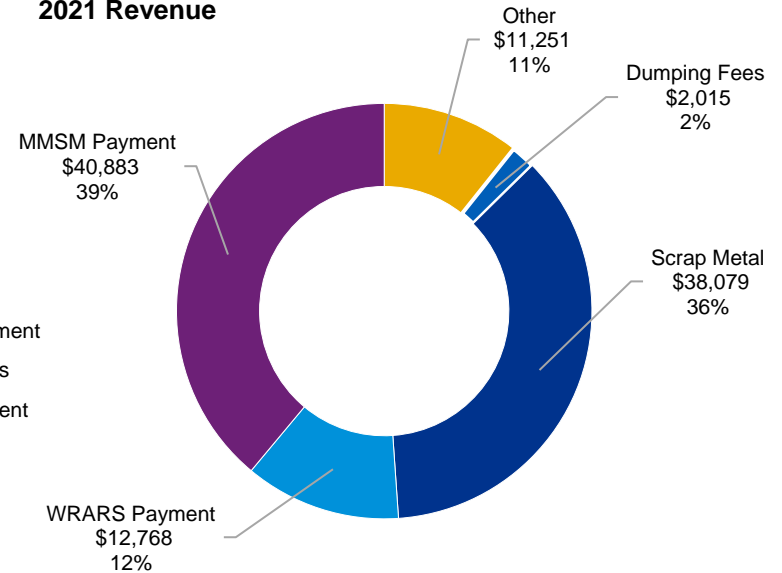
The municipality has a wide range of revenue sources within environmental health services. In 2021, Multi-Material Stewardship Manitoba (MMSM) payments accounted for the largest portion of revenues, accounting for 39%. This funding is followed by scrap metal revenues at 36%, Waste Reduction & Recycling Support (WRARS) payments at 12%, a variety of other revenues sources accounting for 11%, and dumping fees accounting for 2%.

Total Revenue per Capita	
2018	\$47.2
2019	\$25.5
2020	\$25.4
2021	\$40.4
2022*	\$30.4

Environmental Health Services Revenue, 2018-2022



2021 Revenue



Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada.

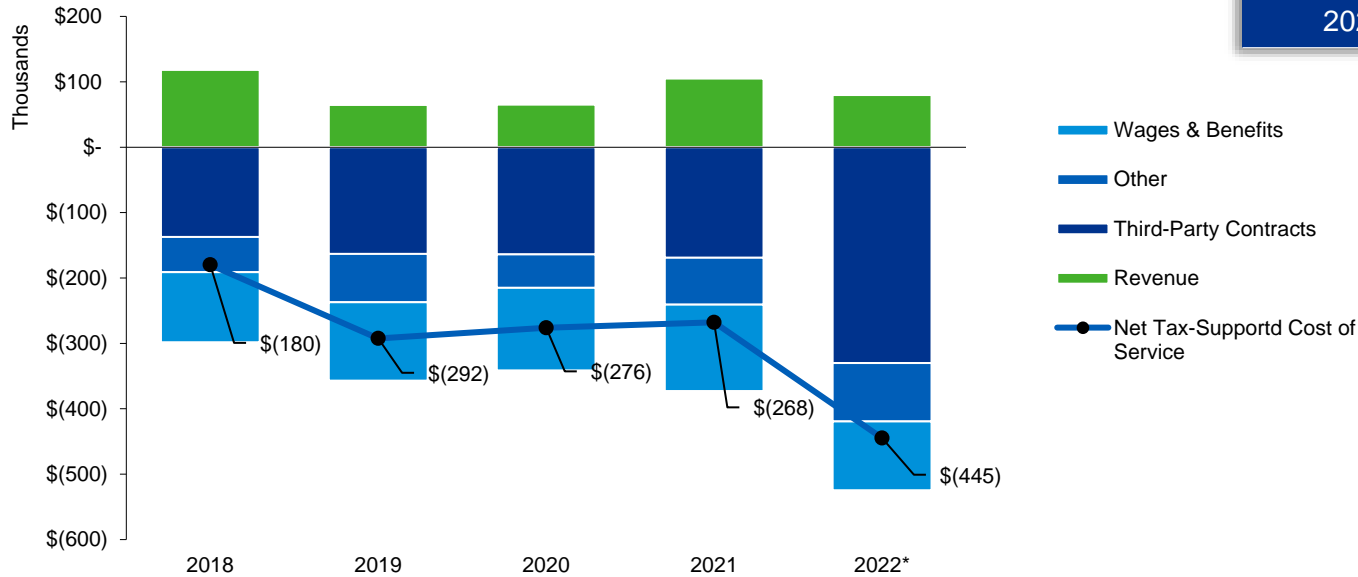
*2022 financials are budgeted figures.

Net Tax-Supported Cost of Service

The net tax-supported cost of service for environmental health services in the Municipality of Russell Binscarth increased by less than 49% from 2019 to 2021, resulting in a net operating deficit of over \$268,000 in 2021. This increased net operating deficit was due to a 25% increase in expenses and 11% decrease in revenues from 2018 to 2021.

Net Tax-Supported Cost of Service per Capita	
2018	\$71.9
2019	\$115.4
2020	\$107.7
2021	\$103.2
2022*	\$169.4

Net Tax-Supported Cost of Service, 2018-2022



Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada.

*2022 financials are budgeted figures.

Current State Review – Russell Binscarth

Waste Collection Volumes

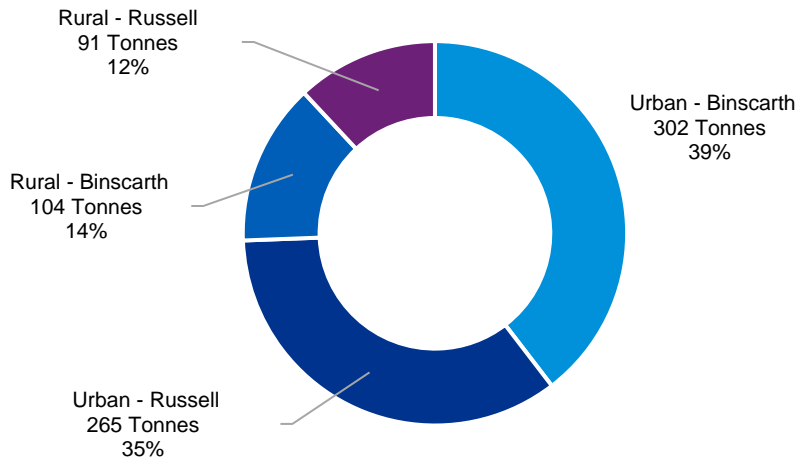
For small municipalities like Russell Binscarth and Riding Mountain West, a weigh scale at their landfills is a capital cost that is difficult to justify due to their relatively small operations and budgets. Thus, proxies are necessary to estimate approximate waste volumes for both.

As MRB has recently contracted OSS for collection and disposal, waste volumes are available for February 2022. During this time, they averaged 14.7 tonnes per week, which would give an annual rate of approximately 760 tonnes per year. A longer sample period will improve the estimate of annual waste collected.

Alternatively, from MRB’s experience, they find that a waste cell (200 ft X 20 ft X 6 ft dimensions) provides them capacity to store waste for a period of 12 months.

Waste Collection & Disposal Expenses per Tonne	
2022 Budget for Waste Collection & Disposal Costs	\$345,000
2022 Estimated Annual Waste Volume (Tonnes)	760
Expenses per Tonne	\$454

Projected Collection Volumes, 2022



Source: Financial information is derived from municipal financial statements, waste volume data derived from municipal and OSS estimates.

Municipal Context

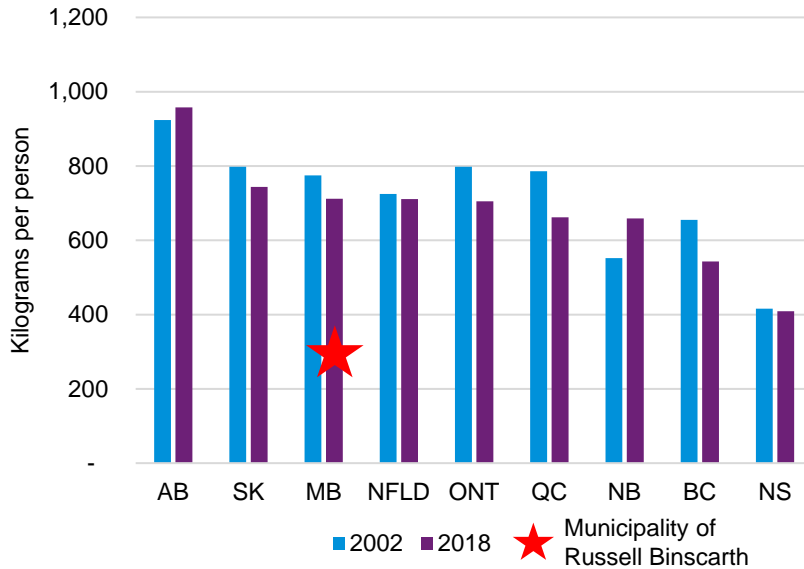
Trends in Consumer Waste & Diversion

The Fraser Institute recently published a report noting a number of interprovincial comparisons, specifically:

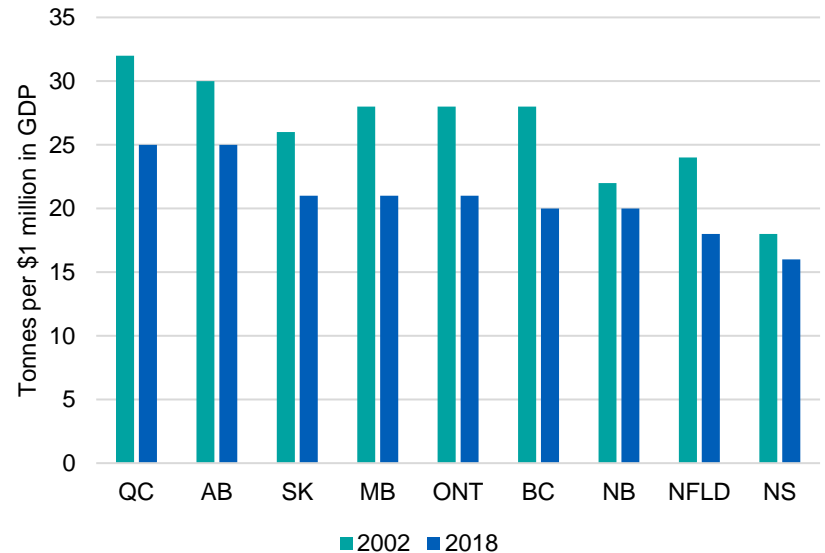
- Using the limited data available for MBR from early 2022, it would suggest that the municipality has a very low disposal rate. Waste volume data for RMW was not available.
- At a high level, Nova Scotia and British Columbia are leading Canada in terms of having the lowest overall waste generated per capita. Manitoba is in the middle of the pack for the remaining provinces.

- When the amount of economic activity is taken into account, the apparent spread of amounts of waste disposed narrows. Nova Scotia continues to stand out in this analysis, but overall, most provinces are performing at a similar level.
- Analysis shows how industry in many provinces has made significant progress in reducing the amount of waste generated when measured by tonnes of waste per million dollars of economic activity.

Per-capita waste disposal, by province, 2002 and 2018



Waste generation intensity, by province, 2002 and 2018



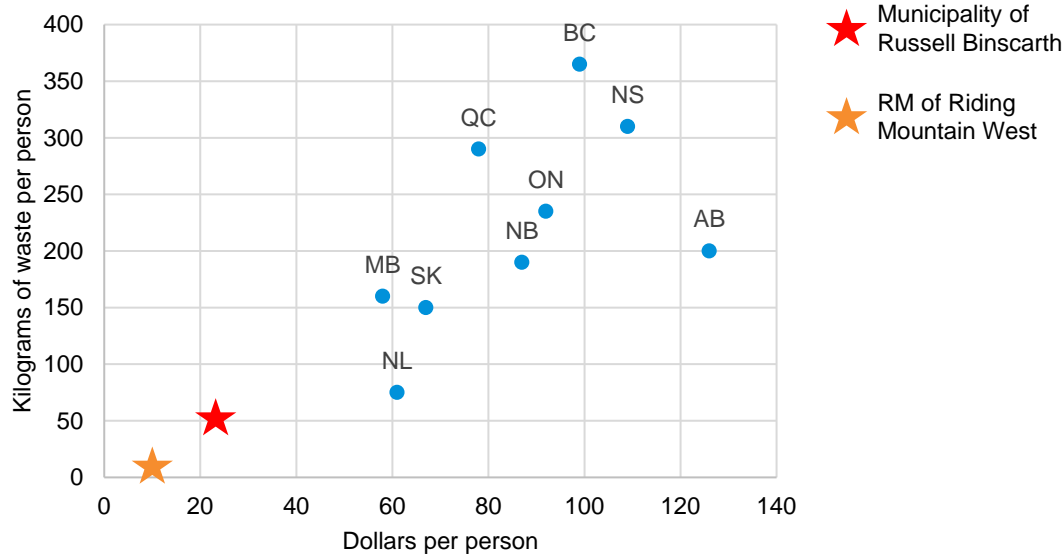
Sources: 1) "Generation and Management of Municipal Solid Waste," The Fraser Institute; Statistics Canada.
 2) Waste volumes from early 2022 and escalated population from 2021 for MRB. Waste volumes not available for RMW.

Municipal Context

Trends in Consumer Waste & Diversion

- It seems that Canadians are becoming more willing to accept increases in taxes to fund additional diversion efforts. Spending in Manitoba is roughly one-half of that by Alberta, Nova Scotia and BC. There may be additional public appetite to support further diversion efforts.
- Manitoba faces specific challenges in pursuing waste reduction strategies, notably: :
 - A large province where northern and Indigenous activities are long distances away from recycling centres.
- Large amounts of available land and low population density, diminishing the cost and space incentives of reducing waste generation.
- A relatively smaller population base, making economies of scale more difficult.

Per-capita waste diversion and per-capita municipal expenditure, by province, 2016



Sources: 1) "Generation and Management of Municipal Solid Waste," The Fraser Institute; Statistics Canada.
 2) For MRB, calculations assume the net cost of recycling programs.






Current State Review

Riding Mountain West

Current State Review – Riding Mountain West

Overview of Services

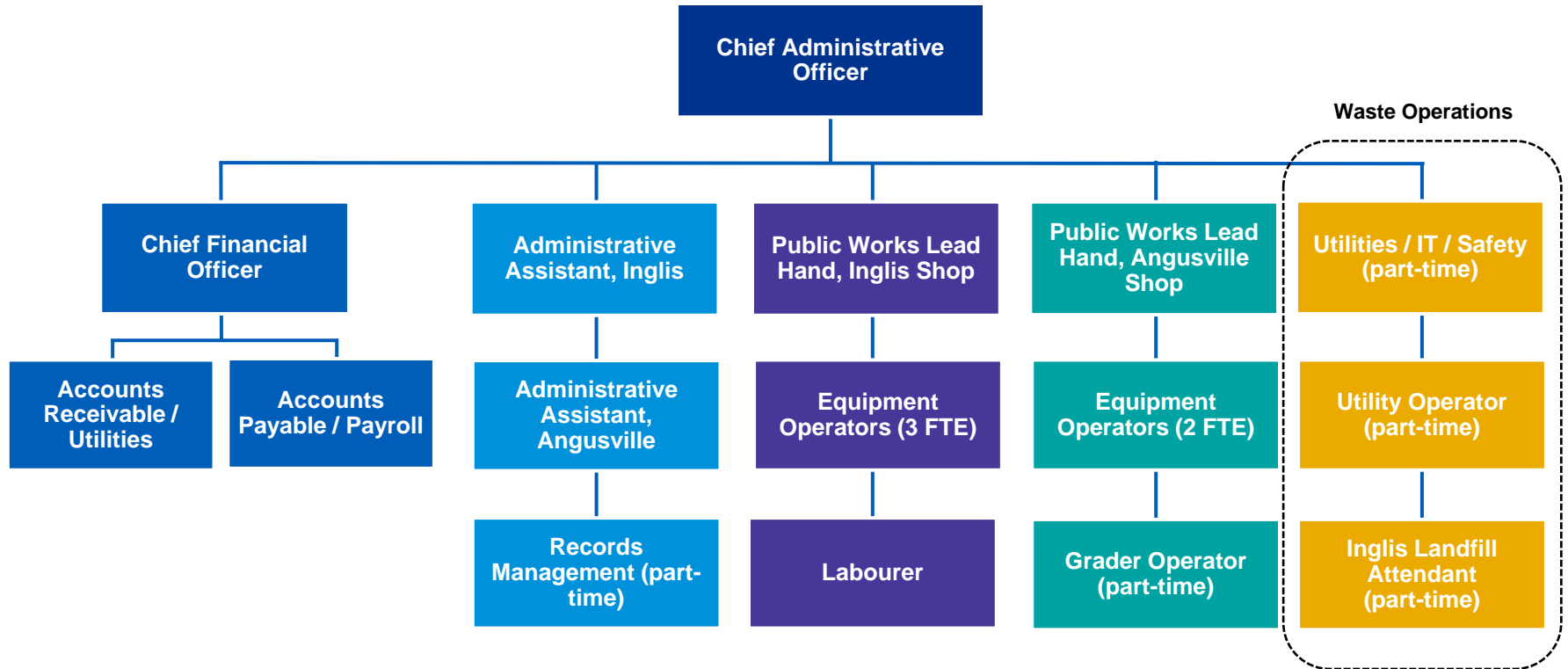
The Rural Municipality of Riding Mountain West provides waste collection and disposal services to its residents as well as recycling services through a third-party vendor. Some services are provided by Russell Binscarth. Riding Mountain West manages its services as described below.

Area of Service	Urban	Rural
Waste Collection 	<p>Riding Mountain West (RMW) conducts weekly waste collection in their urban and developed areas. This waste collection allows for a maximum of two bags per household.</p> <p>Riding Mountain West's waste collection is segmented into two regions, aligning to the two municipalities that amalgamated to form RMW: 1) Shellmouth & Boulton, in the north, and 2) Silver Creek, in the south. These two regions align to two separate disposal locations.</p>	<p>Rural residents of the Municipality living in the northern part of the RM drop off their waste at the Inglis Landfill. Southern residents drop their waste at either of the Russell Landfill or Binscarth Transfer Station.</p>
Waste Disposal 	<p>The waste collected by the Municipality is disposed at one of two landfills. The two landfills are the Municipality of Russel Binscarth's Russell Landfill and RMW's Inglis Landfill.</p> <p>Prior to amalgamation, the Rural Municipality of Silver Creek (now part of RMW) had an agreement with the Municipality of Russell Binscarth to dispose of waste at the Russell Landfill. This arrangement has continued to today.</p> <p>The Municipality owns 18.3% of the Municipality of Russell Binscarth's Russell Landfill and issues annual payments equalling 18.3% of the Municipality of Russell Binscarth's environmental health services net operational deficit (excluding garbage collection expenses).</p>	<p>The Inglis Landfill has approximately three years remaining until it will reach capacity at current collection rates.</p> <p>The Russell Landfill has under one year remaining until it will reach capacity, if no expansion efforts are undertaken.</p>
Diversion & Recycling 	<p>The Municipality has a contract with OSS to conduct urban recycling collection. Riding Mountain West's contract with OSS permits that the Municipality can choose an alternative disposal site for their recycling.</p>	<p>Similar to waste collection, rural residents of the Municipality living in the northern part of the RM drop off their recycling at the Inglis Landfill. Southern residents drop their recycling at either of the Russell Landfill or Binscarth Transfer Station.</p>

Source: Derived from information provided by the RM of Riding Mountain West.

Organizational Structure

The organizational structure of the Rural Municipality of Riding Mountain West is comprised of approximately 2.0 FTEs. With respect to Waste Services, RMW has three part-time staff.



Source: Derived from information provided by the RM of Riding Mountain West.

Expenses

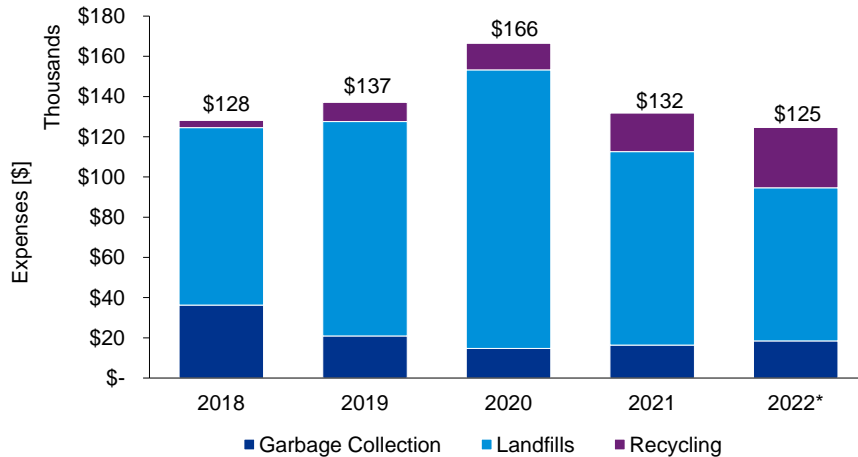
The Rural Municipality of Riding Mountain West experienced a 3% increase in total expenses for environmental health services, from 2018 to 2021, resulting in expenses totalling over \$132,000 in 2021. Expenses peaked in 2020 at over \$160,000. This jump in expenses can largely be attributed to a temporary increase in the cost of landfill contract services associated with landfill expansion operations. The cost of landfill contract services were approximately \$90,000 in 2020 and decreased to approximately \$55,000 in 2021.

The majority of environmental health services expenses for the Rural Municipality of Riding Mountain West are directed towards landfills. In 2021, landfill expenses for the Rural Municipality of Riding Mountain West accounted for 73% of the municipality’s total environmental health services expenses. After landfill expenses, recycling expenses account for 15% of total expenses and garbage collection expenses account for 12%.

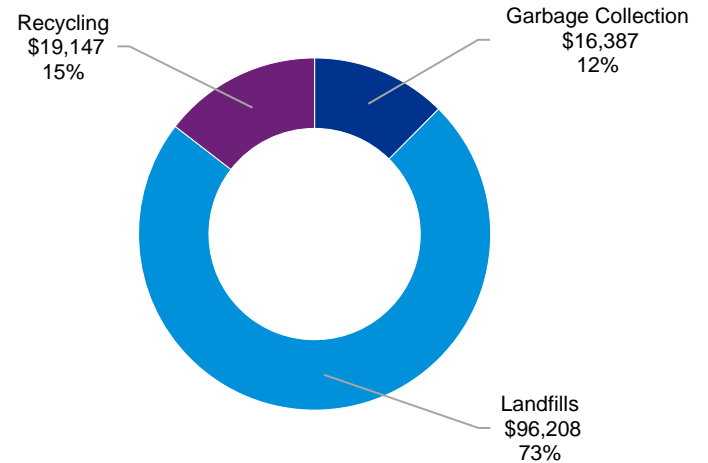
Recycling expenses for 2018-2021 were solely comprised of payments for third-party contracting services.

Total Expenses per Capita	
2018	\$89.7
2019	\$95.7
2020	\$115.8
2021	\$91.8
2022*	\$86.2

Environmental Health Services Expenses, 2018-2022



2021 Expenses



Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada.

*2022 financials are budgeted figures.

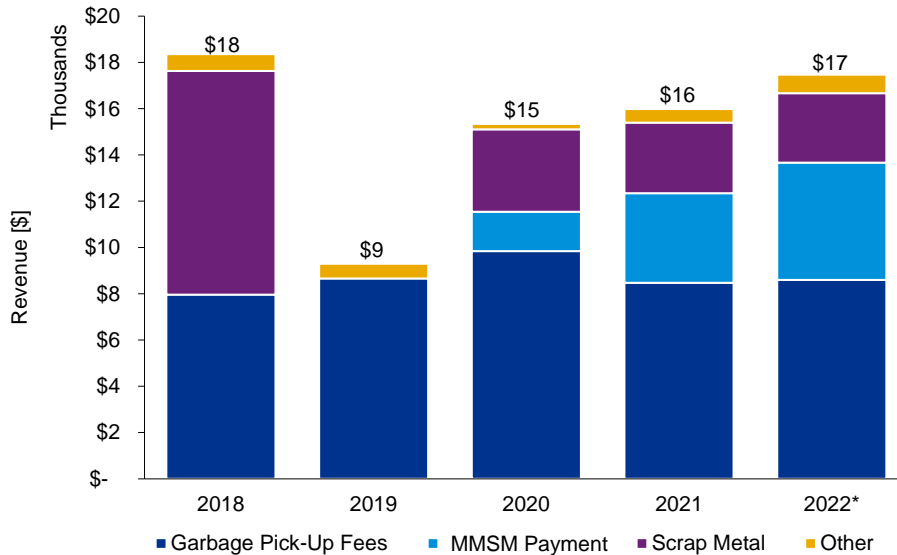
Revenue

Total environmental health services revenue, for the Rural Municipality of Riding Mountain West, decreased by approximately 1% from 2018 to 2021, resulting in revenues totaling nearly \$16,000 in 2021. This decrease can largely be attributed to an decrease in scrap metal revenues, which decreased from over \$9,600 in 2018 to approximately \$3000 in 2021.

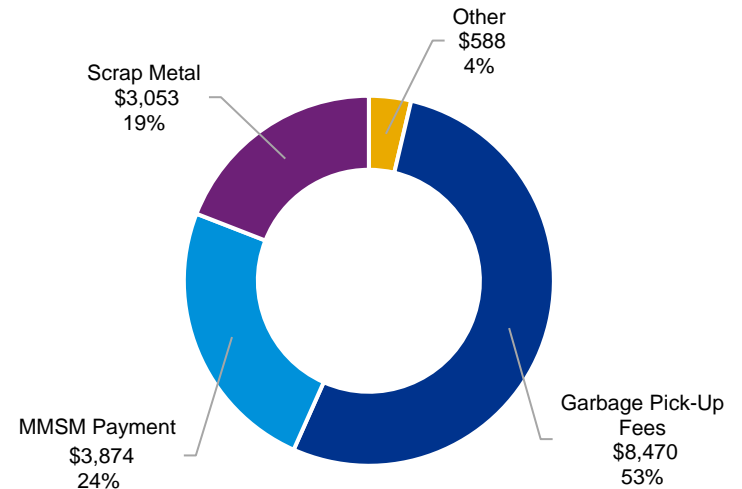
In 2021, the majority of environmental health services revenues for the Rural Municipality of Riding Mountain West were collected through garbage pick-up fees. In 2021, garbage pick-up fees accounted for over 50% of total revenue, followed by MMSM payments at 24%, scrap metal at 19%, and a variety of other revenues accounting for a total of 4%. Garbage pick-up fees also exhibited the least variation, from year to year. Garbage pick-up fees had a maximum year to year variation of 14%.

Total Revenue per Capita	
2018	\$12.8
2019	\$6.5
2020	\$10.7
2021	\$11.1
2022*	\$12.1

Environmental Health Services Revenue, 2018-2022



2021 Revenue



Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada.

*2022 financials are budgeted figures.

Current State Review – Riding Mountain West

Net Tax-Supported Cost of Service

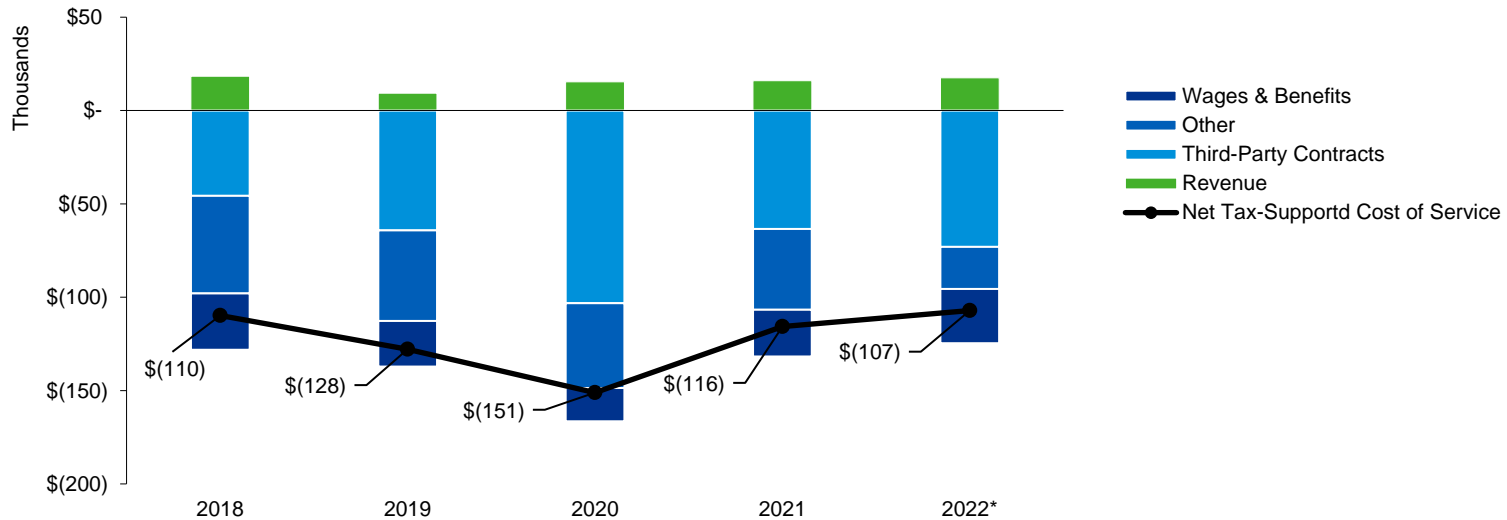
The net tax-supported cost of service for environmental health services in the Rural Municipality of Riding Mountain West increased by approximately 5% from 2018 to 2021, resulting in a net tax-supported cost of service of approximately \$116,000 in 2021. Following the trend seen in expenses, the net tax-supported cost of service peaked in 2020, reaching over \$150,000. This peak can be attributed to a jump in landfill contract expenses in 2020.

The overall trend in the net tax-supported cost of service can be attributed to four primary factors:

- An increase in landfill expenses, from approximately \$88,000 in 2018 to \$96,000 in 2021
- A decrease in garbage collection expenses, from over \$36,000 in 2018 to approximately \$16,000 in 2021
- An increase in recycling expenses, from over \$3,600 in 2018 to approximately \$19,000 in 2021
- A decrease in scrap metal revenue, from over \$9,600 in 2018 to approximately \$3000 in 2021

Net Tax-Supported Cost of Service per Capita	
2018	\$76.8
2019	\$89.2
2020	\$105.1
2021	\$80.3
2022*	\$74.1

Net Tax-Supported Cost of Service, 2018-2022



Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada.

*2022 financials are budgeted figures.





Current State Review

Municipal Benchmarking

Comparable Municipalities

Seven comparable municipalities were chosen to benchmark the environmental health services provided by the Municipality of Russell Binscarth and Rural Municipality of Riding Mountain West. These comparable municipalities were chosen based on the similarity of their populations sizes and population densities to that of the Municipality of Russell Binscarth and the Rural Municipality of Riding Mountain West. The smallest population in the benchmarking study was approximately 1,140 residents (Rural Municipality of Riding Mountain West) and the largest population in the study was approximately 4,470 residents (Rural Municipality of Edenwold).

Municipality	2021 Population
M of Russell Binscarth	2,596
RM of Riding Mountain West	1,442
RM of Alexander	3,854
RM of Grey	2,517
RM of Lac Du Bonnet	3,563
RM of Wallace-Woodworth	2,748
RM of Morris	3,049
RM of Edenwold	4,466
Two Hills County No. 21	3,412



Source: Population statistics derived from Statistics Canada data.

Overview of Benchmarking Results

An overview of the financial data collected from comparable municipalities is outlined in the table below:

Municipalities	2021 Population	2021 Population Density	2020 Waste Collection & Disposal Expenses	2020 Recycling Expenses	2020 Other Env. Health Expenses	2020 Total Env. Health Expenses	2020 Waste Collection & Disposal Expenses per Capita	2020 Recycling Expenses per Capita	2020 Total Env. Health Expenses per Capita
M of Russell Binscarth	2,596	4.6	\$174,976	\$163,946	\$2,395	\$341,317	\$67	\$63	\$133
RM of Riding Mountain West	1,442	0.9	\$153,268	\$13,179	\$0	\$166,447	\$106	\$9	\$115
RM of Alexander	3,854	2.5	\$460,363	\$40,146	\$26,438	\$526,947	\$119	\$10	\$137
RM of Grey	2,517	2.6	\$166,857	\$78,716	\$5,198	\$250,771	\$66	\$31	\$100
RM of Lac Du Bonnet	3,563	3.2	\$452,286	\$97,459	\$49,364	\$599,109	\$127	\$27	\$168
RM of Wallace-Woodworth	2,748	1.4	\$257,536	\$39,658	\$0	\$297,194	\$94	\$14	\$108
RM of Morris	3,049	2.9	\$173,826	\$64,638	\$5,105	\$243,569	\$57	\$21	\$80
RM of Edenwold (SK)	4,466	5.3	\$248,900	\$77,000	\$35,400	\$361,300	\$56	\$17	\$81
Two Hills County No. 21 (AB)	2,596	1.3	\$0	\$0	\$0	\$469,863	\$0	\$0	\$138

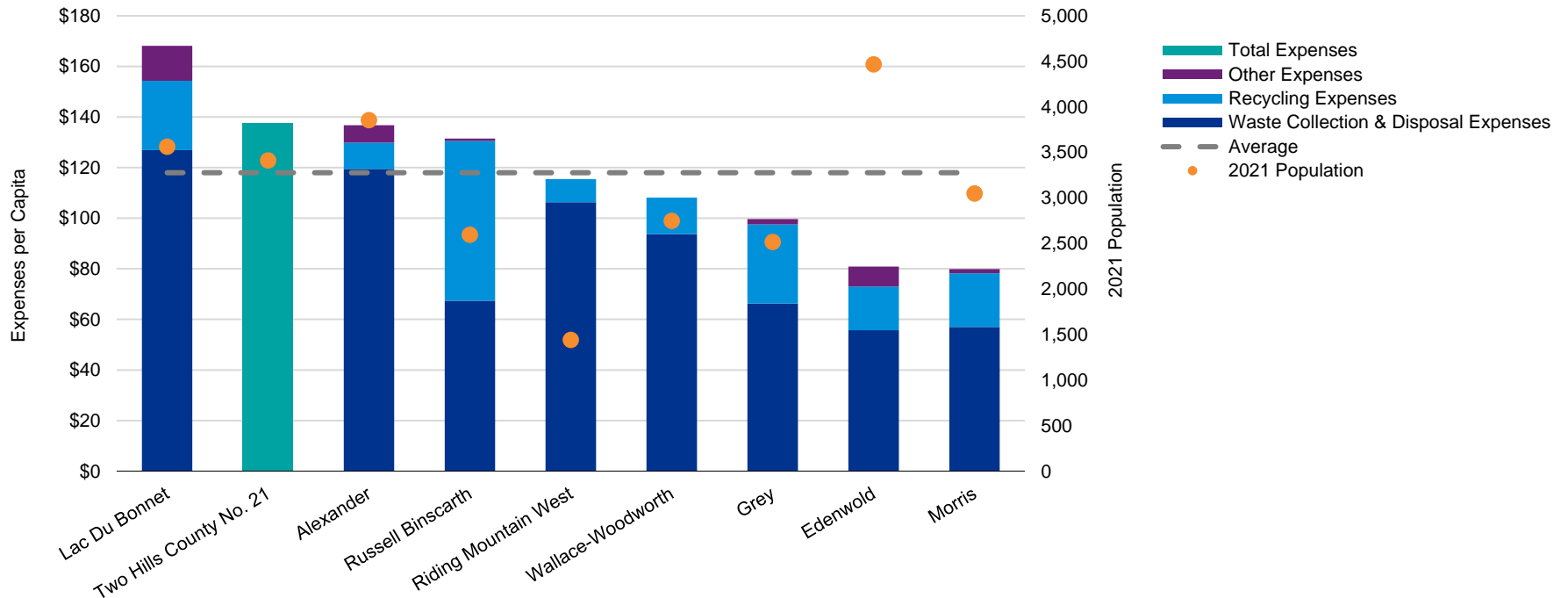
Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada and Municipal Annual Reports. Data may not be strictly comparable due to accounting and reporting differences.

Analysis of Benchmarking Results

Across the nine municipalities studied, the average cost of environmental health services per capita in 2020 was approximately \$118. At approximately \$133 per capita, Russell Binscarth was approximately 12.7% above the group average. Riding Mountain’s cost of service is approximately \$115 per capita, or roughly 2.5% below the group average.

With respect to recycling programs, the Municipality of Russell Binscarth spent approximately \$63 per capita in 2020. This per capita cost seems to be larger relative to the average across the comparable municipalities, approximately \$22 per capita. This may be due to MRB having both urban and rural components to their service delivery. The expenses shown for MRB do not account for RMW’s 18% contribution towards landfill expenses.

Environmental Health Services Expenses per Capita, 2020



Source: Financial information is derived from municipal financial statements, population statistics derive from Statistics Canada and Municipal Annual Reports. Data may not be strictly comparable due to accounting and reporting differences.



Options Analysis

Options Analysis

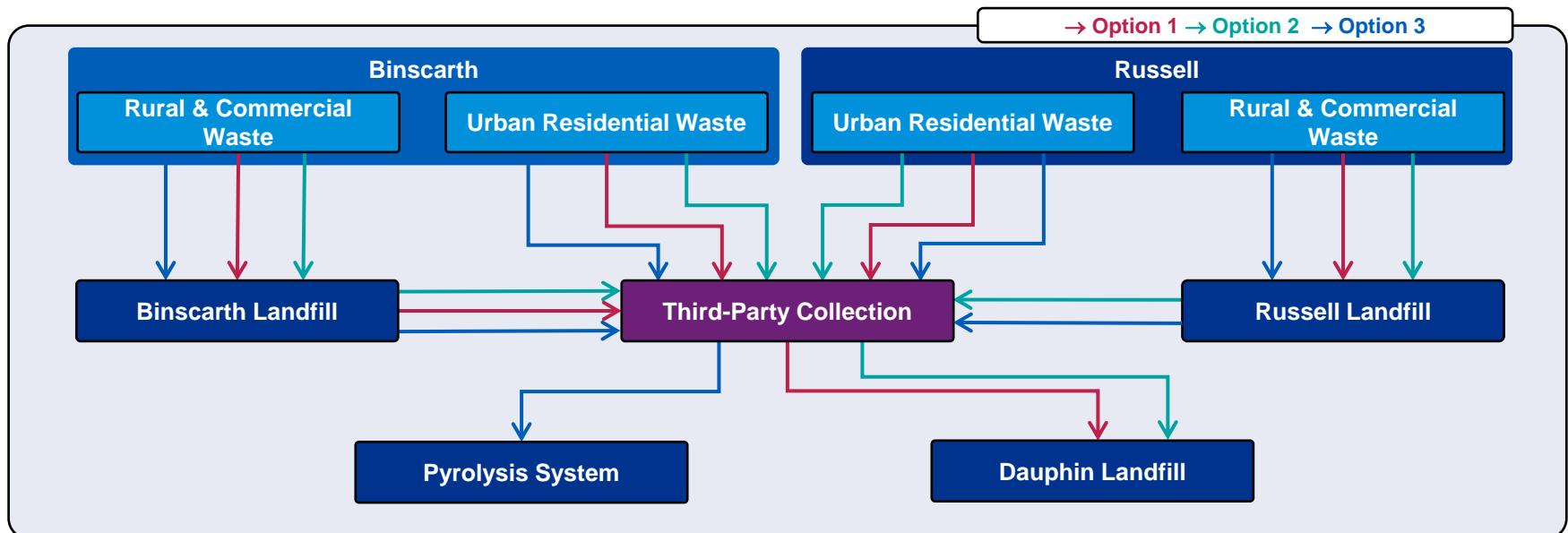
Overview of Options - Mapping

Three options were considered as paths for the Municipality of Russell Binscarth's waste management. The flow of waste for these three options is outlined below.

Option 1: Current State. All urban residential waste is collected by a third-party contractor and disposed of at the City of Dauphin's landfill. Rural and commercial waste deposited at the Binscarth Landfill is transferred to and disposed of at the Dauphin Landfill. Rural and commercial waste deposited at the Russell Landfill is retained at the Russell Landfill.

Option 2: Export all Waste. Continue to collect urban waste through a third-party collection service and dispose of it in Dauphin. As well, continue to transfer rural and commercial waste deposited at the Binscarth Landfill to Dauphin. The difference between Options 1 and 2 is that rural and commercial waste deposited at the Russell Landfill is transferred to and disposed of in Dauphin. Select large items (e.g., old furniture), however, will remain at the Russell Landfill, in order to mitigate expenses for third-party transfer costs and provide the Municipality with some flexibility in waste disposal options.

Option 3: Pyrolysis System. In this option, nearly all waste is diverted to a site in RMW. Urban waste continues to be collected by a third-party vendor, and rural and commercial waste is now transferred to the pyrolysis site. Large items, however, will continue to remain at the Russell Landfill.



Options Analysis

Overview of Options – Expenses

The table below outlines the **expense** categories that are associated with each waste management option for the Municipality of Russell Binscarth. The dollar values associated with each expense category will be outlined in each option's respective report section.

Table of Expenses – MRB Waste Management Options			
Expense Category	Option 1: Current State	Option 2: Export all Waste	Option 3: Pyrolysis
Collection Costs			
OSS Contract - Russell Urban Pickup	X	X	X
OSS Contract - Binscarth Urban Pickup	X	X	X
Disposal Costs			
OSS Contract - Binscarth Landfill Waste Transfer	X	X	X
OSS Contract - Russell Landfill Waste Transfer		X	X
Municipal Service - Russell Landfill, Full Operations	X		
Municipal Service - Russell Landfill, Transfer Station Operations		X	X
Municipal Service - Binscarth Landfill, Transfer Station Operations	X	X	X
Municipal Service – Annual Russell Landfill Expansions	X		
Municipal Service – Bi-Annual Russell Landfill Expansions		X	X
Pyrolysis Costs			
Pyrolysis System - Yearly Capital Cost			X
Pyrolysis System - Operational Costs			X

Options Analysis

Overview of Options – Revenues

The table below outlines the **revenue** categories that are associated with each waste management option for the Municipality of Russell Binscarth. The dollar values associated with each revenue category will be outlined in each option's respective report section.

Table of Revenues – MRB Waste Management Options			
Revenue Category	Option 1: Current State	Option 2: Export all Waste	Option 3: Pyrolysis
Disposal Revenues			
Russell Landfill, Full Operations	X		
Russell Landfill, Transfer Station Operations		X	X
Binscarth Landfill, Transfer Station Operations	X	X	X
Pyrolysis Revenues			
Electrical Power Sales			X
Cryptocurrency Mining			
Greenhouse Gas Credits			X



Options Analysis

Option 1: Current State

Options Analysis – Option 1: Current State

Option Overview

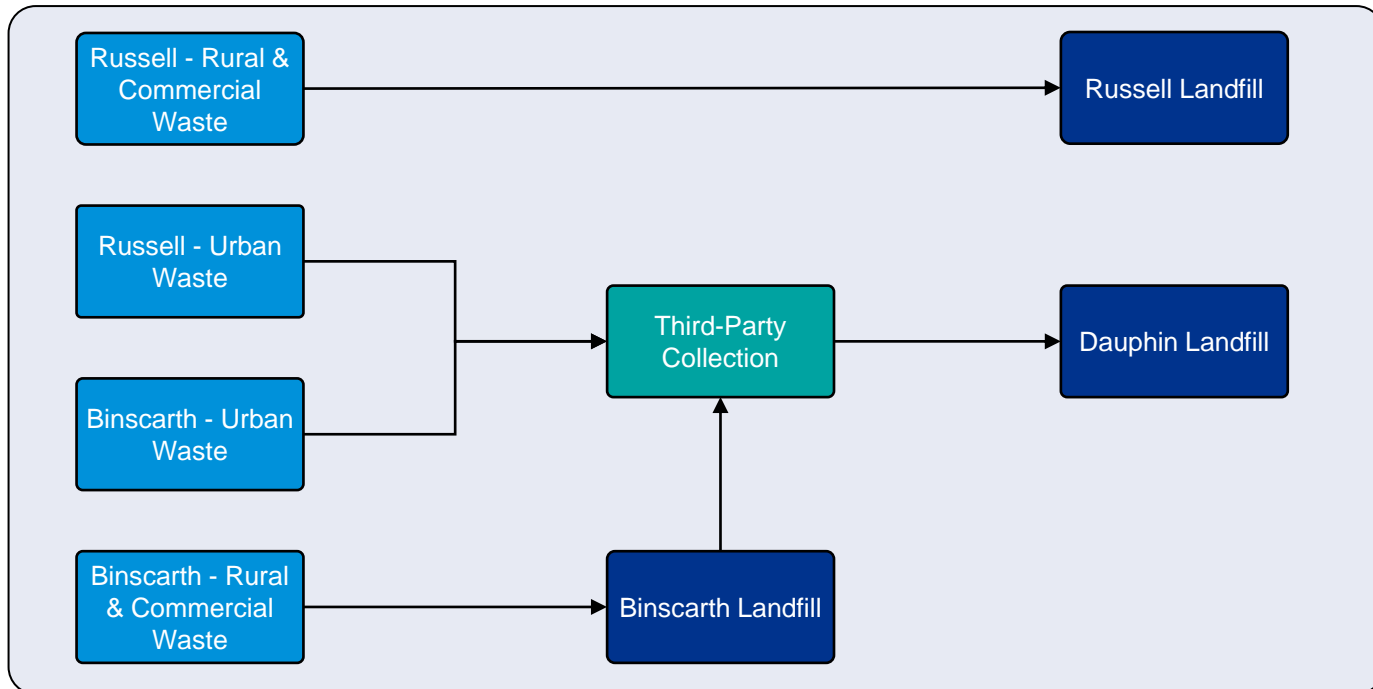
Description

Current State operations for the Municipality of Russell Binscarth consists of the following process:

- All urban waste is collected by a third-party contractor and disposed of in Dauphin.
- Rural and commercial waste deposited at the Russell Landfill is stored at the Russell Landfill.
- Rural and commercial waste deposited at the Binscarth Landfill is transferred to and disposed of in Dauphin.

Financial Impacts

If the municipality of Russell Binscarth were to continue with the current state of waste management, it is anticipated that the Municipality would potentially continue to expand their Russell Landfill annually, at an approximate cost of \$50,000 per year.



Options Analysis – Option 1: Current State

Option Financials

The table below projects the high-level categories of expenses and revenues for the Municipality of Russell Binscarth for 2023, assuming that the Municipality were to continue with their current service delivery model for waste management.

Table of Expenses and Revenues			
	Category	2023 Estimate	Source Notes
Expenses	Collection Expenses		
	Third-Party Contract - Russell Urban Pickup	(\$98,000)	Value sourced from third-party contract provided by MRB.
	Third-Party Contract - Binscarth Urban Pickup	(\$31,000)	Value sourced from third-party contract provided by MRB.
	Disposal Expenses		
	Third-Party Contract - Binscarth Landfill Waste Transfer	(\$22,000)	Value sourced from third-party contract provided by MRB.
	Municipal Service - Russell Landfill, Full Operations	(\$151,000)	Value sourced from 2022 budget minus capital expenditures and maintenance.
	Municipal Service - Binscarth Landfill, Transfer Station Operations	(\$21,000)	Value sourced from 2022 budget.
Municipal Service - Annual Russell Landfill Expansion	(\$50,000)	Value sourced from an average of engineering and design quotes, plus an estimated \$20,000 in labor.	
Revenues	Disposal Revenues		
	Russel Landfill, Full Operations	\$27,000	Value sourced from 2022 budget.
	Binscarth Landfill, Transfer Station Operations	\$1,000	Value sourced from 2022 budget.
Totals	Totals		
	Total Expenses	(\$373,000)	
	Total Revenues	\$28,000	
	Net Tax – Supported Cost	(\$345,000)	

Options Analysis – Option 1: Current State

Next Steps & Considerations

Key considerations for this option are listed below:

- Maintaining a fully operational landfill would de-risk the municipality from fluctuating costs or levels of services associated with third-party providers, in this case, the Dauphin Landfill.
- Continuing with the current state of waste management would remove the need for administrative effort associated with a transition.
- Greenhouse Gas (GHG) emissions for the municipality will be higher than the potential emissions of a pyrolysis project option.
- Russell Binscarth should be aware of associated risks and constraints, and a timetable of next steps for implementation.

Risks and Constraints	Probability	Impact
1. Continuing to construct landfill cells may increase costs associated with potential future environmental remediation.	Medium	Medium
2. Choosing to continue with the current state of waste management in the near-term may cause the Municipality to miss the opportunity to secure provincial funding to support a transition to pyrolysis.	Medium	Medium

Timetable of Next Steps		2022	2023	2024	2025	2026
1.	Contract engineering to oversee design and construction of a new waste cell at the Russell Landfill.					
2.	Monitor the time to fill newly constructed pits at the Russell Landfill and re-evaluate projected expenses.					



Options Analysis

Option 2: Export all Waste

Options Analysis – Option 2: Export all Waste

Option Overview

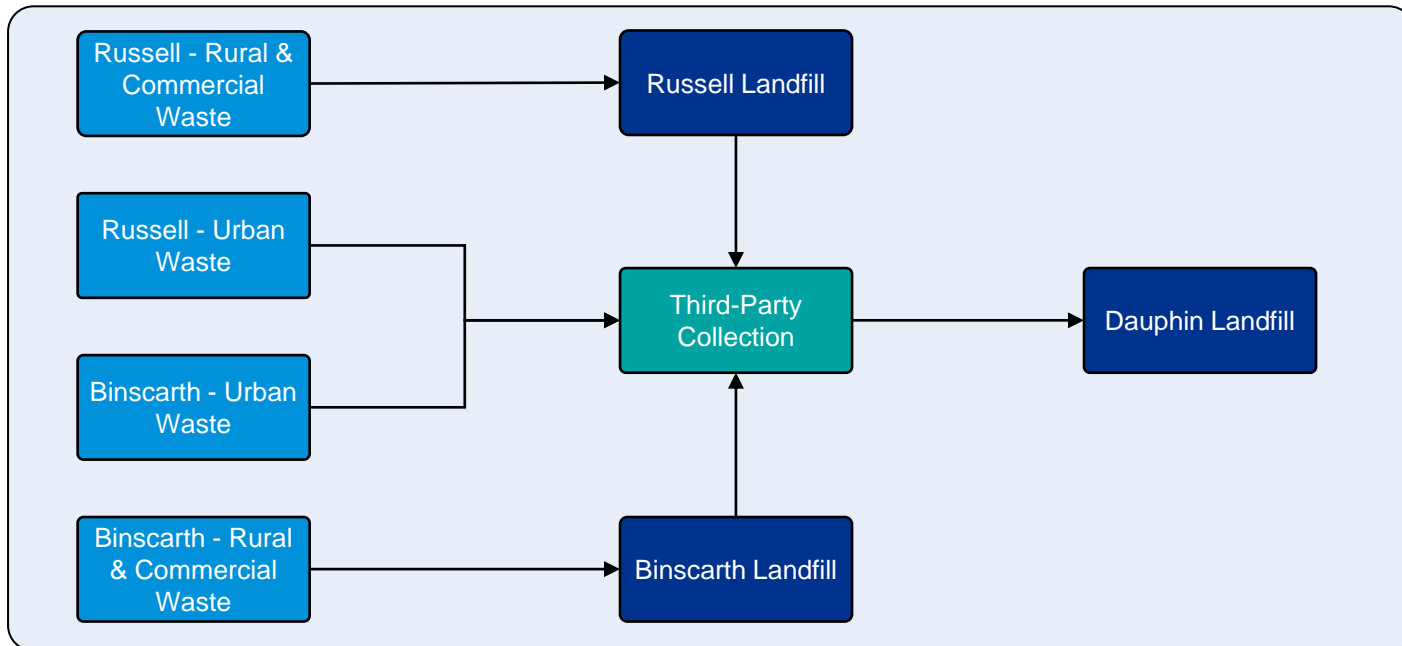
Description

The “Export all Waste” option of waste management for the Municipality of Russell Binscarth consists of the following processes:

- Urban waste is collected through a third-party collection service and disposed of in Dauphin, rural and commercial waste deposited at the Binscarth Landfill is transferred to and disposed of in Dauphin, and rural and commercial waste deposited at the Russell Landfill is transferred to and disposed of in Dauphin.
- Some large waste items, however, will continue to be disposed of at the Russell landfill, in order to avoid higher expenses associated with third-party contract costs and provide the Municipality with some flexibility in waste disposal options.

Financial Impacts

Transferring waste from the Russell Landfill to the Dauphin Landfill is expected to reduce the frequency of construction of new landfill cells at the Russell Landfill to a bi-annual basis.



Options Analysis – Option 2: Export all Waste

Option Financials

The table below projects the high-level categories of expenses and revenues for the Municipality of Russell Binscarth for 2023 assuming that the Municipality were to contract third-party services for the collection and disposal of all waste sources.

Table of Expenses and Revenues			
	Category	2023 Estimate	Source Notes
Expenses	Collection Expenses		
	Third-Party Contract - Russell Urban Pickup	(\$98,000)	Value sourced from third-party contract provided by MRB.
	Third-Party Contract - Binscarth Urban Pickup	(\$31,000)	Value sourced from third-party contract provided by MRB.
	Disposal Expenses		
	Third-Party Contract - Binscarth Landfill Waste Transfer	(\$22,000)	Value sourced from third-party contract provided by MRB.
	Third-Party Contract – Russell Landfill Waste Transfer	(\$44,000)	Value derived from third-party contract for Binscarth transfer (2X).
	Municipal Service - Binscarth Landfill, Transfer Station Operations	(\$21,000)	Value sourced from 2022 budget.
	Municipal Service - Russell Landfill, Transfer Station Operations	(\$76,000)	Value represents ½ of budgeted 2022 Russell Landfill full operations budget.
Municipal Service – Bi-Annual Russel Landfill Expansion	(\$25,000)	Value sourced from an average of engineering and design quotes, plus an estimated \$20,000 in labor, spread over two years.	
Revenues	Disposal Revenues		
	Russel Landfill, Transfer Station Operations	\$27,000	Value sourced from 2022 budget for full Russell landfill operations.
	Binscarth Landfill, Transfer Station Operations	\$1,000	Value sourced from 2022 budget.
Totals	Totals		
	Total Expenses	(\$317,000)	
	Total Revenues	\$28,000	
	Net Deficit	(\$289,000)	

Options Analysis – Option 2: Export all Waste

Next Steps & Considerations

Key considerations for this option are listed below:

- This option has the potential to reduce municipal administrative effort through decreased staffing needs at landfills and reduced frequency of landfill expansions.
- Operationally, MRB and RMW may wish to discuss what services are to be provided to the Silver Creek region of RMW.
 - Drop-off of Silver Creek waste may continue from the Russell or Binscarth Transfer Stations, depending on RMW's own decision to pursue a pyrolysis plant.
 - If RMW separates from MRB's waste services, it may be important to acknowledge some shared risk at the Russell Landfill in terms of Asset Retirement Obligations should the Russell Landfill be decommissioned at some point in the distant future.
 - Recycling collection will be a separate matter from waste operations. RMW may desire to continue to cooperate with MRB in this area.

Along with Russell Binscarth should be aware of associated risks and constraints, and a timetable of next steps for implementation.

Risks & Constraints	Probability	Impact
1. The municipality will be increasingly reliant on external parties to conduct waste management services. MRB will be subject to changes in vendor operating costs.	Low	Medium
2. Need to assess the ability of third party to absorb future increase in waste volume.	Low	Medium

Timetable of Next Steps		2022	2023	2024	2025	2026
1.	Contract engineering and construction services to design and construct a new cell at the Russell Landfill.	→				
2.	Coordinate contractual agreements with third-party collection services for transfers from Russell Landfill.	→				
3.	Reevaluate staffing needs at the Russell Landfill, under transfer station operations.	→				
4.	Monitor the time to fill newly constructed cells at Russell Landfill to reevaluate projected expenses.			→		



Options Analysis

Option 3: Pyrolysis System

Options Analysis – Option 3: Pyrolysis System

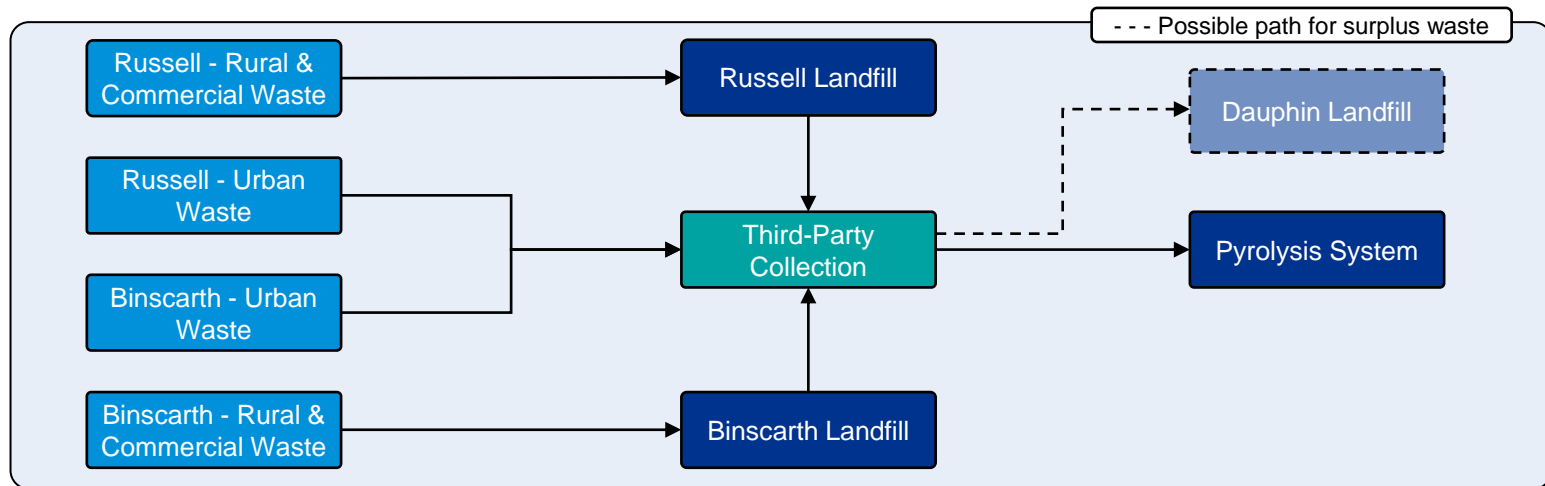
Option Overview

Description

The “Pyrolysis System” option of waste management for the Municipality of Russell Binscarth consists of the following processes:

- Urban waste is collected through a third-party collection service and diverted to a pyrolysis system located in RMW.
- Rural and commercial waste deposited at the Binscarth Landfill is transferred to the pyrolysis system.
- Rural and commercial waste deposited at the Russell Landfill is transferred to the pyrolysis system.
- Some large waste items, however, will remain at the Russell landfill, in order to mitigate third-party contract costs and provide the Municipality with some flexibility in waste disposal options.

The nameplate capacity of a pilot-scale pyrolysis system is 3 tonnes per day or 1,095 tonnes per year. On an operating basis, it can accommodate a range of 1.5 to 4.0 tonnes per day. Considering Russell Binscarth’s estimated waste contribution could be approximately 760 tonnes per year, the financial analysis for this option assumes that **the municipality could incur approximately 70% of the net operating cost or benefit associated with the pyrolysis system**. This percentage may be reevaluated on a year-by-year basis, as waste contributions will vary.



Options Analysis – Option 3: Pyrolysis System

Option Overview

Due to the limited capacity of the pyrolysis system, the Municipality may need to pursue a hybrid model with third-party collection services in the future, where most waste is directed to pyrolysis and the remainder is diverted to Dauphin. There will need to be a discussion between RMW and MRB about how much surplus feed stock of waste will be stored on-side prior to redirecting waste to Dauphin. Considerations could include:

1. Site constraints with respect to the capacity of waste storage and site layout, including how to avoid waste moving downwind.
2. The method of loading waste into the pyrolysis feed system.
3. A discussion of an appropriate amount of administrative overhead.
4. Annual reviews of each municipality's waste contribution, amount directed to a landfill, and proportional costs allocated to each municipality.

Financial Impacts

Through the diversion of waste to the pyrolysis system, the Municipality will incur expenses associated with the system's capital cost and operations and realize revenues from the electricity generated by the system (**revenue projections vary depending on the planned use of the electricity output**).

Options Analysis – Option 3: Pyrolysis System

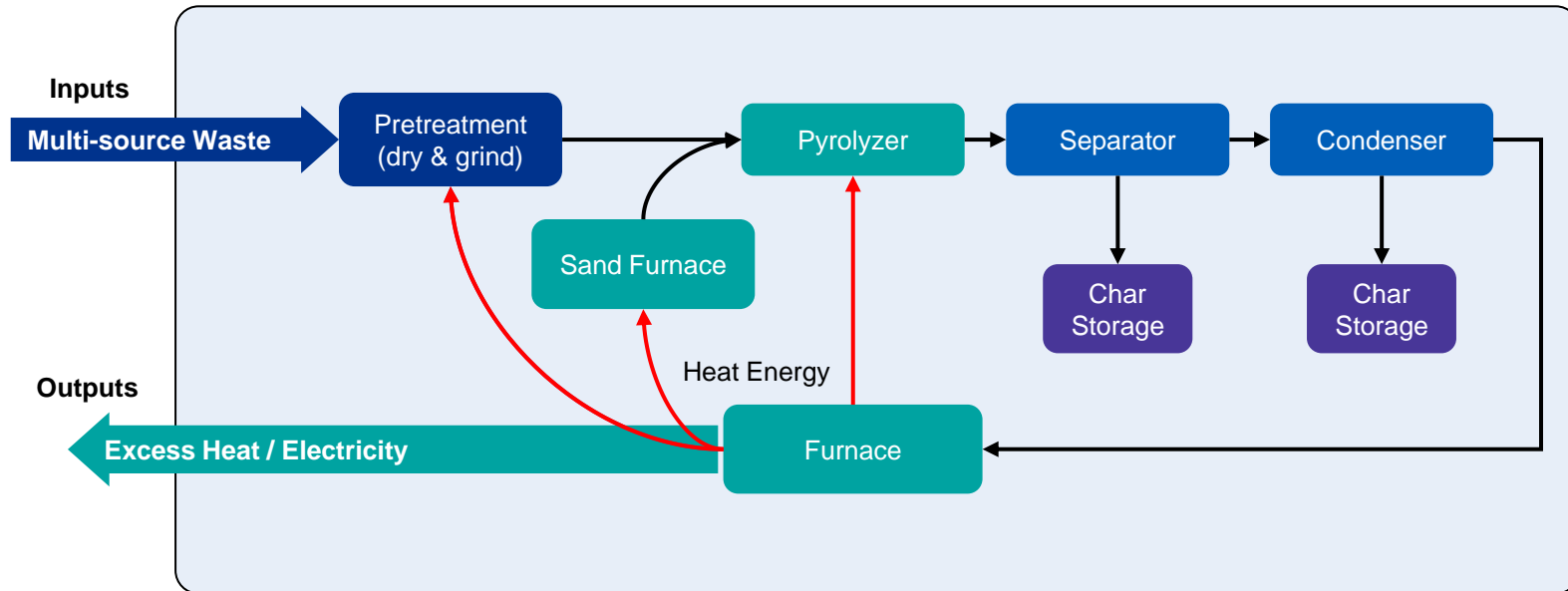
Introduction to Pyrolysis

Pyrolysis Defined

The process of pyrolysis is used to convert multi-source waste into heat and electricity, along with other material outputs. Technically pyrolysis can be defined as, “the thermal breakdown of long chain organic molecules (a reaction known as cracking) into smaller organic components. This thermochemical process typically occurs at a temperature between 400°C and 800°C in the absence of air, sometimes with the addition of a catalyst. In general, lower processing temperatures produce more liquid product and high temperatures produce more syngas. When operated at 800°C or greater, the main product is Syn Gas.”

Pyrolysis Inputs & Outputs

The pyrolysis system that is being considered would produce heat and electricity (outlined in the process map below and on the following slides). The system produces enough electricity to power its own operations as well as to output excess for the operators desired use, which could include serving municipal, institutional, or recreational buildings.



Source: Feasibility study prepared by Cool Green Solutions Inc. and ETGM2.

Options Analysis – Option 3: Pyrolysis System

Pyrolysis System Attributes (1 of 2)

Select key attributes of a pyrolysis pilot system are listed in the table below, based on information collected from a feasibility study prepared by Cool Green Solutions Inc. and ETGM2.

Pyrolysis Pilot System Attributes (1 of 2)		
Size / Capacity	Components	The pyrolysis pilot requires three modules: Garbage Shredding/ Drying Module, Hybrid Waste Processing Module, and Battery Storage Module. There is also an optional module available for facilitating cryptocurrency mining.
	Waste Capacity	The pilot-scale pyrolysis project can accommodate 1.5 to 4 tonnes of waste per day . The capacity for continuous operation, i.e., the nameplate capacity, is 3 tonnes per day.
Operating Factors	Labour	On an ongoing basis, less than 1 FTE will be required to load waste into the system, operate/monitor the system controls, and maintain the system equipment. Additionally, 0.2 FTE will be required for system oversight. There will need to be personnel on-call for any emergencies if the system operates through its recommended 24-hour operation cycles. There will also be administrative duties surrounding the system's possible revenue streams.
	Utilities	A connection to the electrical grid is not required for system operation. However, the decision made by the municipalities regarding the destination of the electrical power produced by system could create the need for grid connection. If the municipalities utilize the electrical power for bitcoin mining or other local electricity uses, no grid connection is required. Whereas, if the municipalities would like to sell the electrical power produced, they would require grid connection. A propane storage tank is required to facilitate system start-ups and shut-downs.
	Equipment	A front-end loader is required to load waste into the garbage shredding/drying module of the system.
	Maintenance	The system will require various consumables, including: filters, exhaust scrubbing materials, and chemical reagents for emission management. The system will also require general service, including: shredder lubrication, cutter sharpening, and front-end loader maintenance.

Pyrolysis System Attributes (2 of 2)

Pyrolysis Pilot System Attributes (2 of 2)		
Outputs	Information	The system keeps a record of the total weight of waste processed.
	Heat	The pilot-scale pyrolysis project can output up to 120kW of net electrical power per day.
	Power	The pilot-scale pyrolysis project can output up to 300kW of net thermal power per day.
	Carbon Char	The amount of carbon char outputted from the system depends on the waste input composition. Biochar is a form of carbon char that is outputted from organic waste materials. Biochar can be sold for use as a soil additive or a feed additive for livestock.
	Ash	Approximately 2-10% of the waste inputted into the pyrolysis system is outputted as ash ; depending on the original waste composition. The ash collected in the system's disposal bin is primarily composed of silica, calcium, iron oxide, and aluminum oxide. In most cases, the ash can be disposed in a class 1 or class 2 landfill , depending on the chemical composition of each batch. The ash can also be sold for use in concrete and other road construction materials.
	Unprocessed Materials	Some unprocessed recyclables will be outputted from the pyrolysis system. These recyclables can include metals and ceramics. As RMW and MRB currently have scrap metal programs, the scrap metal outputs from the system could provide a source of revenue from the system. Note: The municipalities will want to continue to first divert metals and ceramics from waste prior to processing whenever possible.

Options Analysis – Option 3: Pyrolysis System

Pyrolysis System Financials – 3 Tonnes per Day

Projected expenses and revenues for the pyrolysis pilot project are shown below (3 tonne per day capacity), based on information collected from the feasibility study prepared by Cool Green Solutions Inc. and ETGM2.

Two versions of system implementation are outlined. Option 3a assumes that electric power produced is sold, whereas Option 3b assumes that RMW purchases (at a cost of \$200,000) and operates a cryptocurrency mining module.

Pyrolysis Cost & Revenue Projections – 3 Tonne Per Day Pilot				
	Category	Option 3a: Electric Power Sales	Option 3b: Bitcoin Mining	Source Notes
Expenses	Annual Expenses			
	Annual Finance Cost	(\$317,000)	(\$335,000)	Pyrolysis system purchase price of \$3,400,000. Annual cost calculated based on 7% per annum cost of capital over a 20 year term. For Option 3b, assume the Bitcoin Mining System will add a cost of approximately \$200,000.
	Operating Costs	(\$125,000)	(\$125,000)	Labour, supplies, and maintenance. 1.25 FTEs required.
Revenues	Annual Revenues			
	Option 3a: Electrical Power Sales	\$37,000		Electrical power revenue calculated at \$0.07 per kWh.
	Option 3b: Cryptocurrency Mining		\$160,000	Assumes a Bitcoin price of \$40,000 CAD through 2023
	Greenhouse Gas (GHG) Credits	\$181,000	\$181,000	2,780 metric tonnes of CO2 equivalent generated per year at a value \$65 per tonne in 2023.
Totals	Totals			
	Total Expenses	(\$441,000)	(\$460,000)	
	Total Revenues	\$218,000	\$341,000	
	Net Operating Revenue / (Deficit)	(\$224,000)	(\$119,000)	

Option Financials

The table below integrates the contribution of the pyrolysis system and projects financials for 2023. This assumes that the Municipality contracts all collection and disposal waste management services, and diverts all waste to a pyrolysis system.

Table of Expenses and Revenues				
	Category	Option 3a: Electric Power Sales	Option 3b: Bitcoin Mining	Source Notes
Expenses	Collection Expenses			
	Third-Party Contract - Russell Urban Pickup	(\$98,000)	(\$98,000)	Cost of third-party contract provided by MRB.
	Third-Party Contract - Binscarth Urban Pickup	(\$31,000)	(\$31,000)	Cost of third-party contract provided by MRB.
	Disposal Expenses			
	Third-Party Contract - Binscarth Landfill Waste Transfer	(\$22,000)	(\$22,000)	Cost of third-party contract provided by MRB.
	Third-Party Contract – Russell Landfill Waste Transfer	(\$44,000)	(\$44,000)	Cost of third-party contract for Binscarth transfer (2X).
	Municipal Service - Binscarth Landfill, Transfer Station Operations	(\$21,000)	(\$21,000)	Value sourced from 2022 budget.
	Municipal Service - Russell Landfill, Transfer Station Operations	(\$76,000)	(\$76,000)	Value derived from 2022 Binscarth transfer operations budget (2X).
Municipal Service – Bi-Annual Russel Landfill Expansion	(\$25,000)	(\$25,000)	Value sourced from an average of engineering and design quotes, plus an estimated \$20,000 in labor. Divided by two for bi-annual cadence.	
Pyrolysis Capital Cost & Operations (MRB portion, ~70%)	(\$309,000)	(\$322,000)		
Revenues	Disposal Revenues			
	Russel Landfill, Transfer Station Operations	\$27,000	\$27,000	Value sourced from 2022 budget for full Russell Landfill operations.
	Binscarth Landfill, Transfer Station Operations	\$1,000	\$1,000	Value sourced from 2022 budget.
Pyrolysis Revenues (70%)	\$152,000	\$239,000		
Totals	Totals			
	Total Expenses	(\$626,000)	(\$639,000)	
	Total Revenues	\$181,000	\$267,000	
	Net Operating Revenue / (Deficit)	(\$445,000)	(\$372,000)	

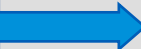

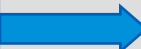

Options Analysis – Option 3: Pyrolysis System

Next Steps & Considerations

Key considerations for this option are listed below, along with risks and constraints, and a timetable of next steps for implementation:

- With a pyrolysis system capacity of 3 tonnes per day (1,095 tonnes per year), the current waste production of Russell Binscarth and Riding Mountain West will likely use the full capacity of the system (based on preliminary waste data).
- Without an additional pyrolysis unit, there will be no spare capacity for participation from additional municipalities.
- This option will reduce municipal GHG emissions from waste management, relative to the current state of services.
- The Municipality of Russell Binscarth and the Rural Municipality of Riding Mountain West will need to enter into a contractual agreement in order to determine sharing of pyrolysis revenues and expenses.

Risks & Constraints	Probability	Impact
1. The pyrolysis system is fairly novel, particularly in North America. With the implementation of such technology, there is a risk of failure and/or unexpected system performance issues.	Medium	Low
2. As the pyrolysis system reaches intake capacity and the Municipality needs to divert waste to other locations, third-party collection contracts may have unforeseen costs.	Medium	Medium
3. While Bitcoin mining presents an exciting opportunity to the municipalities in how to use the surplus electric power, there are numerous risks (market risks, operating risks, and others) that may affect its profitability.	Medium	High
4. The value of carbon credits may be subject to political change.	Medium	High

TIMETABLE OF NEXT STEPS		2022	2023	2024	2025	2026
1.	Negotiate provincial participation in financing a pyrolysis system.					
2.	Determine contractual terms with RMW for sharing of pyrolysis expenses and revenues.					
3.	Coordinate pyrolysis waste diversion with third-party waste collection services.					
4.	Monitor pyrolysis net recovery relative to current state over time.					



Options Analysis Summary & Recommendations

Options Analysis

Summary of Options – Financials

Conclusions

Comparing the options presented on a financial basis (see table on following page), Option 2, “Export all waste” provides the lowest program cost.

Option 2: Export all waste

Implementing Option 2: “Export all waste” rather than the Current State model (Option 1), could result in a cost improvement in the order of \$56,000 per year compared to the Current State. Exporting waste is expected to slow the growth of program costs, with a result that cost savings will also grow to approximately \$111,000 in 2032 – i.e., in 10 years, exporting waste is expected to cost approximately \$111,000 less than the current state model.

Option 3: Pyrolysis

Comparing Option 3: “Pyrolysis” to the Current State model (Option 1) on a cost basis alone, pyrolysis is expected to increase waste program costs to MRB by approximately \$100,000 per year in 2023 (i.e., compared to the current state). Looking 10 years into the future, pyrolysis could result in waste program savings of approximately \$99,000 per year. This change from increased cost to cost savings is based on the assumed annual increases to carbon credit pricing, mirroring the schedule issued by the Canadian government. Operating savings from the pyrolysis plant will be dependent on federal tax credits.

On a related note, the pyrolysis plant is expected to generate electricity and heat as process outputs. These energies can be directed to support large public buildings. There is an option to use the electricity generated to operate a Bitcoin mining rig. Such a path would make the pyrolysis the lowest cost option of those considered.




Assumptions:

1. Annual inflation of 2% (does not account for current inflationary pressures).
2. Continued population growth of 5% (in the next five years) mirroring that of the last 5 years, with accompanying linear increases in expenses and revenues.
3. Third-party collection costs are unaffected by travel distance (where most waste is diverted to pyrolysis located in RMW and the rest is diverted to Dauphin, for example). In reality, it could be expected that collection costs could be lower due to reduced travel distances.
4. The pyrolysis plant will run at full-capacity in its pilot year, based on projected waste volumes from MRB and RMW. Preparations could include staffing, site planning, and waste overflow planning.
5. Greenhouse Gas credit values increase annually from \$65 in 2023 to \$170 in 2032 (see Appendix A – GHG Credit Projections). Assuming that GHG credits continue to escalate according to the plan set out, the pyrolysis plant may break even with the next best option, exporting waste, in approximately ten years.
6. Bitcoin assumed to have an average value of \$40,000 CAD in both 2023 and 2032.

Options Analysis


Summary of Options – Evaluation & Considerations

Decision-makers should be aware of the following qualitative considerations in concert with the financial considerations.

		Option 1: Current State	Option 2: Export all Waste	Option 3: Pyrolysis
Tax-Supported Program Cost	Net Cost 2023	\$345,000	\$289,000	Range: \$372,000 to \$445,000
	Net Cost 2032	\$680,000	\$569,000	Range: \$533,000 to \$581,000
	+/- from Current State 2023	n/a	+\$56,000	Range: -\$100,000 to -\$27,000
	+/- from Current State 2032	n/a	+\$111,000	Range: +\$99,000 to +\$147,000
Environmental Considerations 	Opting out of using a pyrolysis system would cause MRB’s GHG emissions to remain relatively unchanged . Exporting all waste could lead to higher emissions, due to longer travel distances to landfill disposal.		GHG emissions would be reduced , through shorter waste disposal travel distances and reduced landfill input. It is estimated that MRB would save ~2.5 CO2 eq. tonnes per tonne of waste diverted from landfills to pyrolysis.	
Administrative Considerations 	Continuing with the current state of waste management would avoid effort required by a transition .	Exporting all waste would reducing municipal staffing requirements (removing full time landfill operations).	MRB will need to enter into contractual agreements with Riding Mountain West (and possibly the province) in order to determine revenue, expense, and ownership sharing of a pyrolysis plant.	
Operating Considerations 	Continuing to expand the Russell Landfill will require ongoing costs and administration.	The vendor will be able to accommodate growth in waste volumes as the Municipality’s population grows.	The pilot-scale pyrolysis system may not be able to absorb all of RMW & MRB’s waste in the near-future . As MRB’s population continues to grow, MRB may need to pursue a hybrid waste model – i.e., where most waste is directed to the pyrolysis plant and some is diverted to Dauphin.	
	Russell Binscarth will likely want to cooperate with RMW in recycling operations. Going forward, it will be important to have some metric (e.g., waste volumes, travel distance, etc.) to evaluate the portion of costs borne by each municipality.			

Summary of Options – Evaluation & Considerations

Decision-makers should be aware of the following qualitative considerations in concert with the financial considerations.

<p>Impacts on Risk </p>	Option 1: Current State	Option 2: Export all Waste	Option 3: Pyrolysis
	<ul style="list-style-type: none"> – Continuing to construct landfill cells may increase costs associated with potential future environmental remediation – Choosing to continue with the current state option may cause the MRB to miss an opportunity to secure provincial funding to support a transition to pyrolysis. 	<ul style="list-style-type: none"> – MRB will be increasingly reliant on external parties to conduct waste management services. MRB will be subject to changes in vendor operating costs. – Need to assess the ability of third party to absorb future increase in waste volume. 	<ul style="list-style-type: none"> – The pyrolysis system is fairly novel, particularly in North America. With the implementation of such technology, there is a risk of failure and/or unexpected system performance issues. – As the pyrolysis system reaches intake capacity and the Municipality needs to divert waste to other locations, third-party collection contracts may have unforeseen costs. – While Bitcoin mining presents an exciting opportunity to the municipalities in how to use the surplus electric power, there are numerous risks (market risks, operating risks, and others) that may affect its profitability. – The value of carbon credits may be subject to political change.



Appendix A – GHG Credit Projections

Greenhouse Gas Credit Schedule

Year	\$ Value per Metric Tonne of CO2 equivalent	Number of Metric Tonnes Reduced per Year	\$ Value of Credit per Year
2022	50	2780	\$139,000
2023	65	2780	\$180,700
2024	80	2780	\$222,400
2025	95	2780	\$264,100
2026	110	2780	\$305,800
2027	125	2780	\$347,500
2028	140	2780	\$389,200
2029	155	2780	\$430,900
2030	170	2780	\$472,600
2022-2030		2780	\$2,752,200

Information sourced from feasibility study prepared by Cool Green Solutions Inc. and ETGM2.

Source: Derived from publicly available data from the Government of Canada.



Appendix B - Additional Background

Appendix B – Additional Background

Municipal Comparator's Overview

For the purposes of the review, seven comparator communities were selected as municipal comparators based on population size and growth, urban/rural characteristics, economic similarities, and geographical representation from across Manitoba, Saskatchewan, and Alberta.

Municipalities	2021 Population	2020 Operating Expenses	2020 Revenues	2020 Landfill Closure & Post-Closure Liabilities	2020 Long-Term Debt	2020 Tangible Capital Assets	Key Economic Sectors and Industries
M of Russell Binscarth	2,596	\$6,851,246	\$7,166,179	\$624,652	\$6,271,334	\$34,188,390	Health Care & Social Assistance, Mining & Extraction, Retail Trade, Accommodation & Food Services, Agriculture & Forestry
RM of Riding Mountain West	1,442	\$3,453,043	\$3,838,737	\$151,105	\$116,948	\$7,025,285	Agriculture & Forestry, Health Care & Social Assistance, Retail Trade, Mining & Extraction, Construction
RM of Alexander	3,854	\$6,770,236	\$6,874,090	\$1,322,193	\$589,016	\$13,760,784	Health Care & Social Assistance, Construction, Public Administration, Retail Trade, Accommodation & Food Services
RM of Grey	2,517	\$7,097,583	\$8,289,155	\$18,915	\$5,026,954	\$28,701,244	Agriculture & Forestry, Health Care & Social Assistance, Retail Trade, Manufacturing, Public Administration
RM of Lac Du Bonnet	3,563	\$5,918,030	\$6,090,231	\$0	\$337,207	\$10,364,536	Public Administration, Health Care & Social Assistance, Retail Trade, Construction, Utilities
RM of Wallace-Woodworth	2,748	\$9,212,508	\$10,719,010	\$276,050	\$3,217,587	\$40,852,538	Agriculture & Forestry, Construction, Retail Trade, Health Care & Social Assistance, Accommodation & Food Services
RM of Morris	3,049	\$6,673,139	\$7,276,985	\$0	\$3,397,217	\$32,928,199	Agriculture & Forestry, Manufacturing, Construction, Health Care & Social Assistance, Educational Services
RM of Edenwold (SK)	4,466	\$8,392,310	\$8,144,074	\$0	\$2,707,300	\$42,261,488	Construction, Health Care & Social Assistance, Retail Trade, Agriculture & Forestry, Public Administration,
Two Hills County No. 21 (AB)	3,412	\$17,577,092	\$12,959,000	\$0	\$337,946	\$53,167,374	Agriculture & Forestry, Construction, Health Care & Social Assistance, Manufacturing, Educational Services

*RMW values are currently sourced from RMW's 2020 financial plan (operating expenses and revenues) and 2018 financial statement (landfill liabilities, debt and assets)

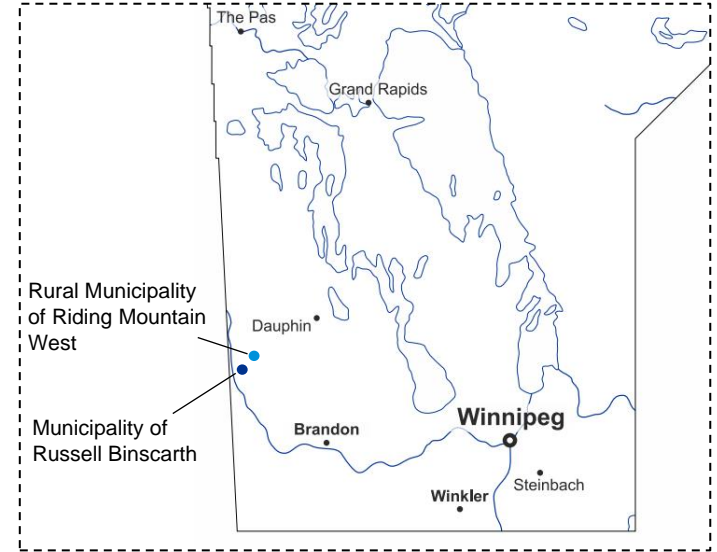
Source: Financial information is derived from municipal financial statements, population statistics are derived from Statistics Canada and Municipal Annual Reports. Data may not be strictly comparable due to accounting and reporting differences.

Appendix B – Additional Background

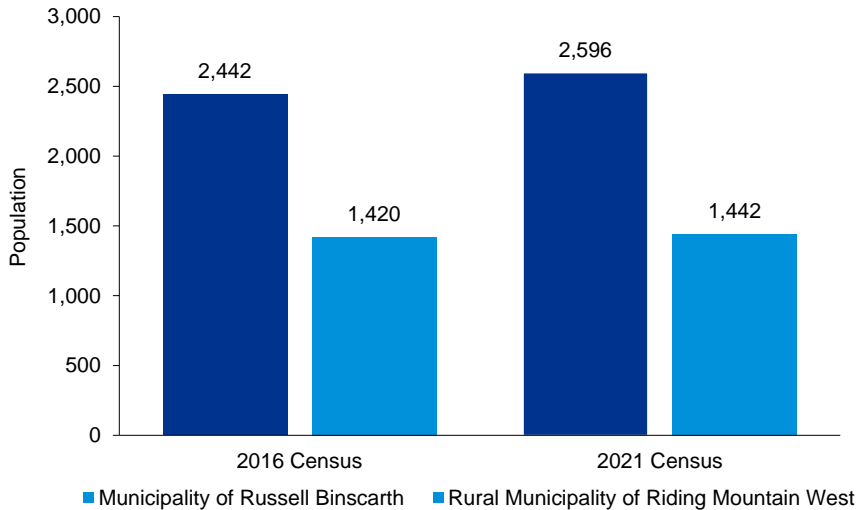
Population Trends

The Municipality of Russell Binscarth experienced a population growth rate of approximately 6.3% from 2016 to 2021, resulting in a 2021 population of nearly 2,600 residents. This growth outpaced the population growth rates of Canada and Manitoba, which were approximately 5.2% and 5.0%, respectively, during this period. Riding Mountain West experienced a slower growth rate than the national and provincial rates with a growth rate of approximately 1.5%, resulting in a 2021 population of under 1,500 residents.

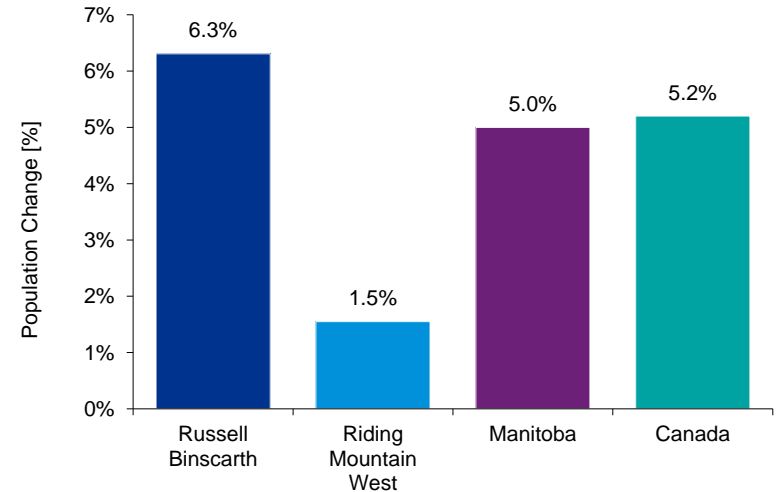
The relative population density of Russell Binscarth is approximately four times that of the Rural Municipality of Riding Mountain West. It would be expected that the per capita cost of providing waste services to RMW would be higher due to increased travel distances and times compared to MRB and others.



Municipal Population Growth (2016, 2021)



Population Growth, 2016-2021



Source: Statistics Canada (2016 Census and 2021 Census)

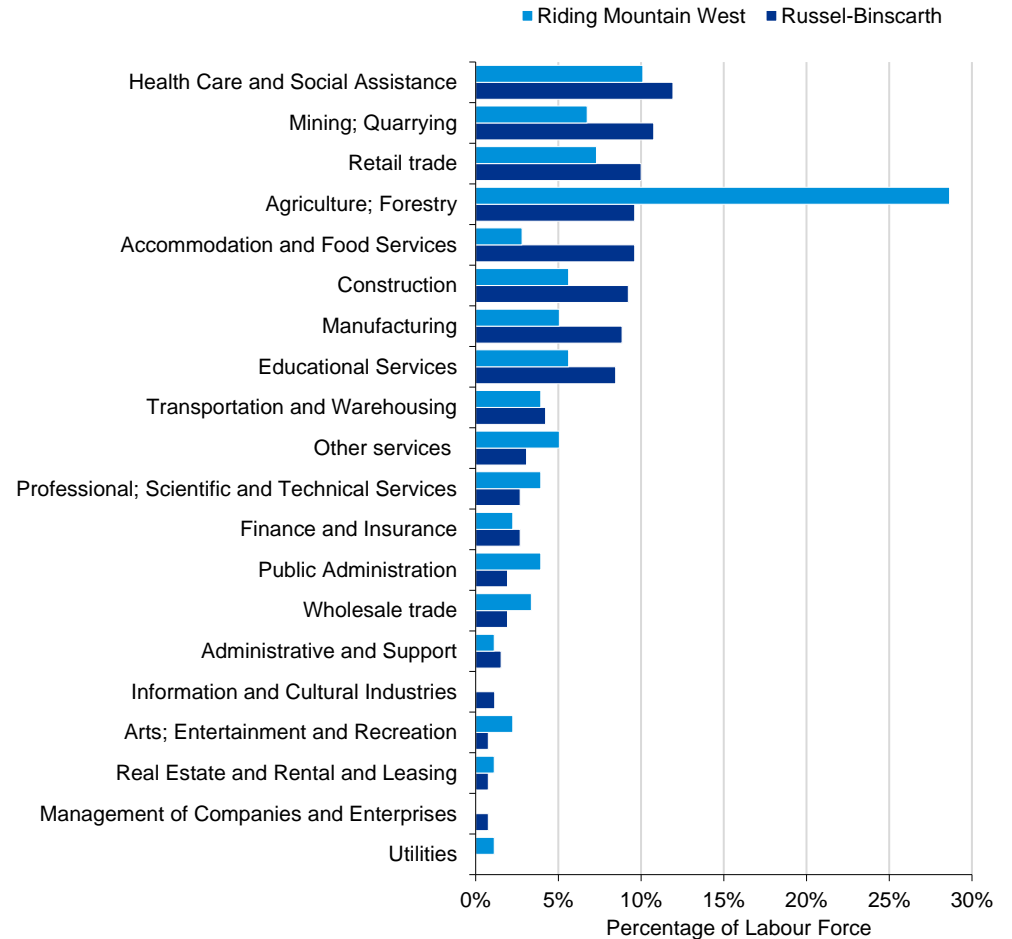
Appendix B – Additional Background

Labour Force by Industry

Industries within or surrounding a municipality can have a significant effect on the environmental health services that a municipality provides, both through landfill disposal volumes and material types as well as collection volumes at commercial sites.

Russell Binscarth and Riding Mountain West share common industries that account for a large percentage of their respective labour forces. The industries of Healthcare, Mining, Retail Trade, and Agriculture all fall within the top five industries by labor force percentage in both municipalities. While these industries account for similar labour force percentages in the Municipality of Russell Binscarth, agriculture stands out for the Rural Municipality of Riding Mountain West, accounting for over 28% of the municipality's total labour force.

Labour Force Percentage by Industry



Source: Statistics Canada (Census 2016)

Appendix B – Additional Background

Provincial Funding Programs (1 of 2)

Municipalities may arguably have the largest role in affecting service delivery to the public on a daily basis of any level of government. It's helpful to note that how municipalities are funded has shifted in recent years. In prior times, provincial governments would provide a large part of their funding for targeted programs, which could include waste management, rather than allowing flexibility for municipalities.

These days, varying jurisdictions provide a mix of approaches where some portion is targeted, and other funds are delivered through a kind of “basket funding.” The following tables discuss the approaches of the three prairie provinces. As far as how this affects MRB and RMW, costs of disposal have been dramatically changed by to new environmental regulations, though they are not accompanied by specific funding supports.

Province	Municipal Funding Overview	Funding Constraints
Manitoba	<p>The Manitoba Provincial Government provides funding to municipalities through a “Strategic Municipal Investment Fund.” This fund utilizes a basket model which was established in 2017 to provide funding to municipalities in lump sums while minimizing administration requirements. Funding amounts are determined based on the size of municipal populations and transportation infrastructure portfolios.</p> <p>In 2021-2022, the province distributed \$51.3 million in operating funding and \$61.7 million in strategic infrastructure funding to municipalities through the Strategic Municipal Investment Fund (excluding the City of Winnipeg). Including the City of Winnipeg, the province distributed a total of approximately \$310 million.</p>	<p>Funding distributed as “Municipal Operating” funding is provided to municipalities unconditionally and can be spent as municipalities see fit.</p> <p>Funding distributed as “Strategic Infrastructure” funding is provided to municipalities under the requirement that the funding be used for projects that align with Manitoba’s definition of strategic infrastructure. This can include water and wastewater treatment plants, solid waste facilities, public transit, roads and bridges, and recreation projects.</p>

Source: Funding information was derived from publicly available information provided by the Manitoba and Saskatchewan governments.

Appendix B – Additional Background

Provincial Funding Programs (2 of 2)

Province	Municipal Funding Overview	Funding Constraints
<p>Alberta</p>	<p>The Alberta Provincial Government provides funding to municipalities through four funding streams. These streams include:</p> <ul style="list-style-type: none"> – Allocation-based grants, – Project-based funding, – Competitive funding, and – Needs-based funding. <p>In 2020-2021, the provincial government provided \$1.6 billion in funding to municipalities to support development and maintenance of core municipal infrastructure.</p>	<p>Allocation-based grants to municipalities are calculated based on municipal characteristics such as population size and road length. This funding is designated for particular uses within the municipality.</p> <p>Project-based funding requires that municipalities submit a list of projects for approval before funding is allocated. Examples of programs that provide funding in this stream are the Municipal Sustainability Initiative (MSI) and the Canada Community Building Fund.</p> <p>Competitive funding requires municipalities to submit grant applications to the Funding Ministry in order to access funding for specific purposes. More than half of Alberta municipal funding programs fall under this funding category.</p> <p>Needs-based funding is allocated to municipalities in the event of extreme or urgent situations. Administrative processes for obtaining needs-based funds will vary depending on the circumstances.</p>
<p>Saskatchewan</p>	<p>The Saskatchewan Provincial Government distributes funds to municipalities through their “Municipal Revenue Sharing” program. The government estimates that \$275 million was distributed to municipalities through this program in 2021-2022. This is a 117% increase from 2007-2008.</p> <p>The funding amount for rural municipalities considers a combination of transportation/roads related data and population data. The transportation-dependent portion constitutes 70% of the grant funding and the population-based portion constitutes the remaining 30%.</p>	<p>Funding provided through the Municipal Revenue Sharing program can be spent as municipalities see fit. However, the following is required from municipalities in order to be eligible for funding:</p> <ol style="list-style-type: none"> 1. Submission of an Audited Annual Financial Statement to the Ministry; 2. Submission of Public Reporting on Municipal Waterworks to the Ministry (if applicable); 3. Education Property Taxes (EPT) in good standing; 4. Adoption of a Council Procedures Bylaw; 5. Adoption of an Employee Code of Conduct; and 6. Filing and annually updating Public Disclosure Statements from all members of council.

Source: Funding information was derived from publicly available information from the Alberta government.

Appendix B – Additional Background

Leading Practices

The following tables describe a number of trends and initiatives by various levels of government in Canada to progress the cause of waste diversion and recycling. Some of these are already reflected in Russell Binscarth and Riding Mountain.

Trend	Description	Impacts and Initiatives	Application to MRB / RMW
Plastic Waste Reduction	Plastics are a form of waste that has garnered attention recently, particularly around the issue of ocean plastics in southeast Asia and single-use plastics (SUP), resulting in plastics becoming a target of government attention. It is estimated that 300 million tonnes of plastics are manufactured globally each year, half of which are used for single-use items.	<p>In response, the Canadian Council of Ministers of the Environment (CCME) together with the Government of Canada have developed an action plan to implement the Canada-wide Strategy on Zero Plastic Waste. A sampling of the related initiatives includes the following:</p> <ul style="list-style-type: none"> – Banning harmful single-use plastics as early as 2021 under the Canadian Environmental Protection Act. The ban would reduce pollution from single-use plastic products and packaging – such as shopping bags, straws, cutlery, plates and stir sticks. – Ensuring that companies that manufacture plastic products or sell items with plastic packaging are responsible for managing the collection and recycling of their plastic waste through Extended Producer Responsibility (EPR) programs – Investing in new Canadian technologies through the Canadian Plastics Innovation Challenge. 	This initiative may reduce waste coming to MRB / RMW disposal sites to a small extent.

Source: “Manitoba Waste Diversion and Recycling Framework Review”

Appendix B – Additional Background

Leading Practices

The following tables describe a number of trends and initiatives by various levels of government in Canada to progress the cause of waste diversion and recycling. Some of these are already reflected in Russell Binscarth and Riding Mountain.

Trend	Description	Impacts and Initiatives	Application to MRB / RMW
CCME EPR: Harmonization and Phase 2 Materials	The Canada-wide Action Plan (CAP) was established in 2009 and set out two phases where recycling programs for various materials would be developed.	<p>Jurisdictions committed to working towards managing the following products and materials in operational EPR programs within six years of the adoption of the CAP:</p> <ul style="list-style-type: none"> – Packaging, printed materials – Mercury containing lamps, other mercury-containing products – Electronics and electrical products – Household hazardous and special wastes – Automotive products <p>Jurisdictions further committed to working towards adding to their EPR programs, within eight years of the adoption of the CAP, the following product categories:</p> <ul style="list-style-type: none"> – Construction materials, demolition materials – Furniture – Textiles and carpet – Appliances, including ozone-depleting substances (ODS) 	<p>MRB already supports diversion of print, electronic, hazardous and automotive recyclables.</p> <p>Furniture and appliances are among the items <u>not</u> forwarded to the Dauphin Landfill, due to their greater cost of handling and disposal.</p>
Waste to Energy vs Landfilling	Many Canadian jurisdictions are looking to find opportunities to decrease waste to landfill and also generate electricity and heat.	There has been increased interest in Waste to Energy (WtE) technologies, particularly in some prairie provinces and smaller municipalities, led by an interest in decreasing landfill capacity and the potential of revenue generation by new technology providers (e.g., gasification, pyrolysis, incineration and energy from waste).	The Municipalities are actively considering these technologies and they are one of the drivers of this report.

Source: “Manitoba Waste Diversion and Recycling Framework Review”

Appendix B – Additional Background

Leading Practices

Trend	Description	Impacts and Initiatives	Application to MRB / RMW
COVID-19	Numerous changes to public buying, consuming and disposal patterns affected waste management demands as well as the composition of waste.	<p>COVID-19 impacts on the waste management and recycling industries have included:</p> <ul style="list-style-type: none"> – The increase of residential waste generated and the decrease in commercial waste generation, and its impact on waste audit data analysis in the near future. – Increased waste from masks, gloves and personal protective equipment (PPE) as well as packaging resulting from increased online shopping and restaurant take-out containers. – Producer Responsibility Organization (PRO) program implications (e.g., program revenue increases due to higher sales during COVID-19). 	Like most municipalities, MRB and RMW will have been negatively impacted to some extent by increased waste generated during the pandemic, though it's difficult to measure the change due to limited waste volume data.
Municipal / Regional Considerations	The geographical spread of rural communities throughout Manitoba and the lack of waste facility infrastructure in remote communities suggests that the province consider a regional approach to waste management.	As the Ministry of Environment, Climate and Parks has already collected data on the locations of Class 1, 2 and 3 landfills across the province, there is opportunity for coordinated effort to optimize waste management and recycling/diversion infrastructure, and to collaborate with processors and end markets.	The Municipalities have collaborated with each other for many years and have recently expanded their lens to consider outsourcing waste collection with waste to be disposed of in Dauphin.
GHG / Climate Change	Greenhouse gases and climate change will continue to be a focus.	<p>Manitoba has taken steps as a result of its Made in Manitoba approach to climate change:</p> <ul style="list-style-type: none"> – Establishment of an efficient trucking program launched in March 2020, with \$11.7 million provincial-federal support for incentives for fuel-saving devices and retrofitting of heavy-duty freight trucks. – Establishing Efficiency Manitoba under The Efficiency Manitoba Act, with energy savings targets. 	MRB and RMW have both expressed an interest in including GHG inputs as a decision criteria in their actions.

Source: "Manitoba Waste Diversion and Recycling Framework Review"



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This report (the “Report”) by KPMG LLP (“KPMG”) is provided to the Municipality of Russell Binscarth and the Rural Municipality of Riding Mountain West (the “Municipalities”) pursuant to the agreement for professional services between the Municipalities and KPMG dated December 3rd, 2021, to conduct an Environmental Health Services Review (the “Review”).

If this Report is received by anyone other than the Municipalities, the recipient is placed on notice that the attached Report has been prepared solely for the Municipalities for their own internal use and this Report and its contents may not be shared with or disclosed to anyone by the recipient without the express written consent of KPMG and the Municipalities. KPMG does not accept any liability or responsibility to any third party who may use or place reliance on the Report.

The intention of the Report is to provide a current state assessment focused on Environmental Health Services provided by the municipalities, benchmark against comparable municipalities, report on potential efficiency opportunities and to provide analysis on future waste management options.

The procedures we performed do not constitute an audit, examination or review in accordance with standards established by the Chartered Professional Accountants of Canada, and we have not otherwise verified the information we obtained or presented in this Report. We express no opinion or any form of assurance on the information presented in the Report, and make no representations concerning its accuracy or completeness. The Municipalities are responsible for their decisions to implement any opportunities/options and for considering their impact. Implementation will require the Municipalities to plan and test any changes to ensure that the Municipalities will realize satisfactory results.

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